6.26

SERVICE MANUAL

FISHER

CA891

CA-890

WITH WIRELESS REMOTE CONTROL REM-890

Integrated Stereo Amplifier

(EUROPE)

132 301 40

NOTE:

This model is supplied with the Remote Control REM-890. For details, refer to the Remote Control REM-890 of the Service Manual (WM-17355).

WM-17154

6.26

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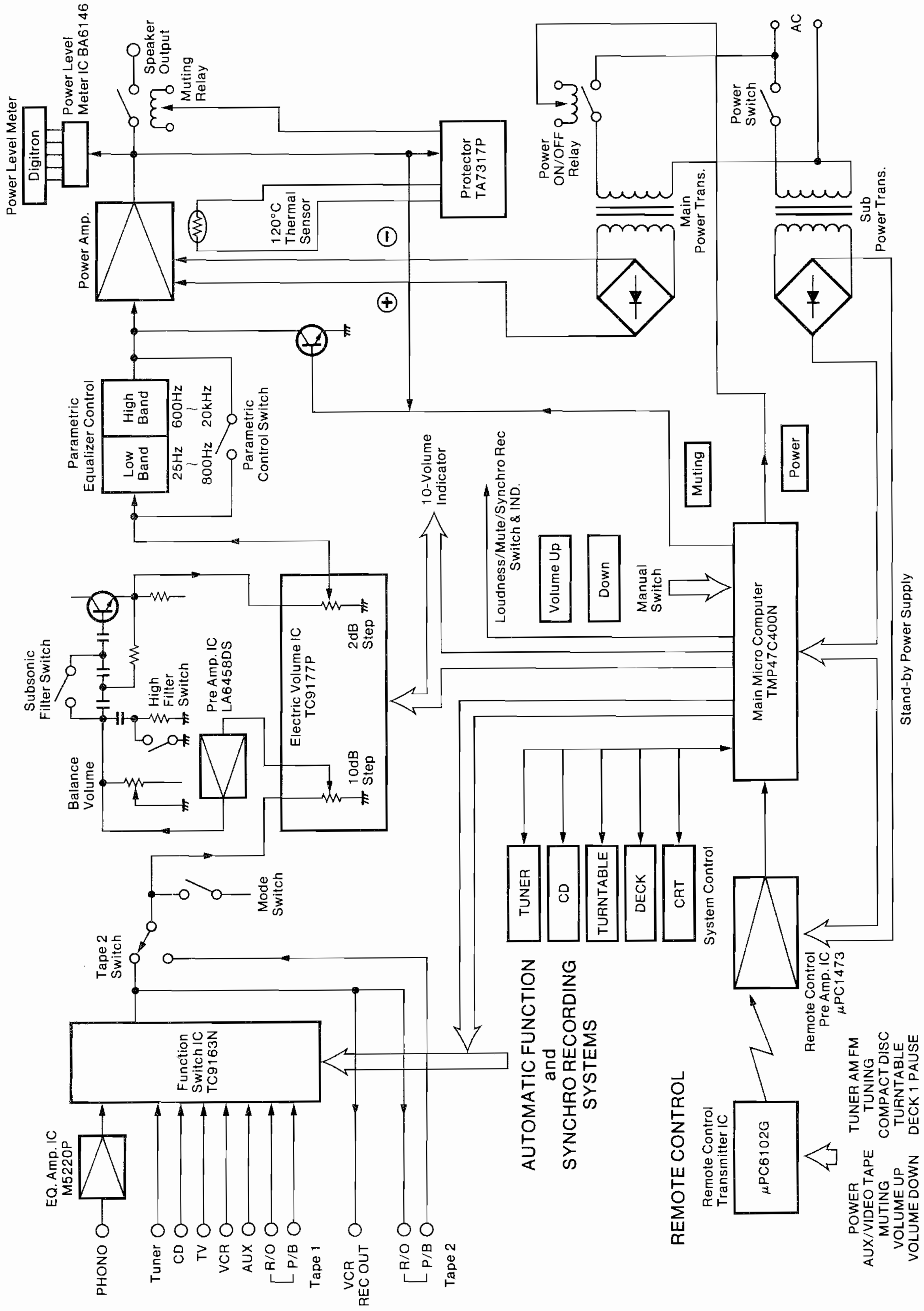
NOTE:
Schematic Diagram is separately attached to this manual.

FUNCTIONAL BLOCK DIAGRAM


Power Level Meter
Digitron
Power Level Meter IC BA6146
Speaker Output
Muting Relay
Power Amp.
120°C Thermal Sensor
Protector TA7317P
Power ON/OFF Relay
Main Power Trans.
Power Switch
AC
Sub Power Trans.
Parametric Equalizer Control
Low Band
High Band
25Hz ~ 800Hz
600Hz ~ 20kHz
Parametric Control Switch
10-Volume Indicator
Loudness/Mute/Synchro Rec Switch & IND.
Volume Up
Down
Manual Switch
Muting
Power
Main Micro Computer TMP47C400N
Stand-by Power Supply
Subsonic Filter Switch
High Filter Switch
Pre Amp. IC LA6458DS
Balance Volume
Electric Volume IC TC9177P
2dB Step
10dB Step
Mode Switch
Tape 2 Switch
TUNER
CD
TURNTABLE
DECK
CRT
System Control
Remote Control Pre Amp. IC μPC1473
Function Switch IC TC9163N
EQ. Amp. IC M5220P
AUTOMATIC FUNCTION and SYNCHRO RECORDING SYSTEMS
REMOTE CONTROL
Remote Control Transmitter IC
μPC6102G
POWER
AUX/VIDEO TAPE
MUTING
VOLUME UP
VOLUME DOWN
TUNER AM FM
TUNING
COMPACT DISC
TURNTABLE
DECK 1 PAUSE
PHONO
Tuner
CD
TV
VCR
AUX
R/O
P/B
Tape 1
VCR REC OUT
R/O
P/B
Tape 2

SPECIFICATIONS

AMPLIFIER		CA-890
POWER AMPLIFIER SECTION **Minimum RMS sine wave power per channel within stated bandwidth at no more than stated distortion and with 8-ohm load**		**150 Watts**
Power Bandwidth		**20 Hz – 20 kHz**
Total Harmonic Distortion		**0.02 %**
I.M. Distortion		0.02 %
Speaker Damping		> 20
PREAMPLIFIER SECTION Frequency Response	Phono (RIAA)	±1 dB
	Aux (20 Hz – 20 kHz)	±1 dB
Input Sensitivity and Impedance	Phono	2.5 mV/50 kΩ
	VCR Tape Monitor 1,2	150 mV/50 kΩ
	Tuner/TV/CD/Aux	150 mV/50 kΩ
Phono Max. Input Capability		140 mV
Parametric Equalizer	25 Hz – 800Hz	±12 dB
	600 Hz – 20kHz	±12 dB
High Filter (Above 10 kHz)		–6dB/Oct.
Subsonic Filter (Below 10 Hz)		–12dB/Oct.
Loudness Contour (100 Hz/10 kHz)		+8 dB/ +4 dB
Hum & Noise (IHF Short Circuit, A Network)	Phono	80 dB
	VCR/Tape Monitor 1,2	95 dB
	Tuner/TV/CD/Aux	95 dB
GENERAL Power Requirements (50Hz)		110 / 220 V AC
Power Consumption		700 Watts
AC Outlets		2
Dimensions (W x H x D)		440 x 140 x 320 mm
Weight (approx.)		11.8 kg

Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify product designs and specifications without notice and without incurring any obligation.

CIRCUT DESCRIPTION

The CA-890 has the following features:

1. Full Remote Control/Auto Function Selection
2. AV-Compatible
3. High Output Power Amplifier (150W x 2)
4. Built-in Parametric Equalizer
5. Multi-Protection circuit

1. Full Remote Control/Auto Function Selection

The infrared remote control can be used for control of 46 different audio system functions – that is, practically all functions.

Also, auto function selection and synchronized recording are possible not only with manual operation but also by remote control.

In order to make this possible, two types of microprocessors have been developed; a main microprocessor (4k-byte ROM capacity) and a sub microprocessor (1k-byte).

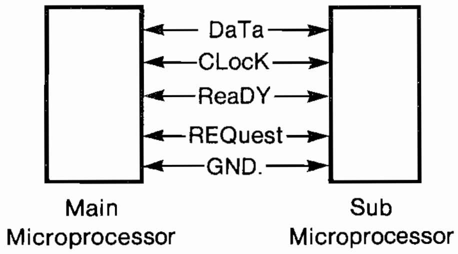
The main microprocessor is built into the amplifier, and sub microprocessor are mounted in the components (tuner, CD player, turntable, cassette deck).

These microprocessors exchange data mutually.

As shown below, the main and sub microprocessors are connected by two-way data buses.

When the remote control is used and auto function selection is performed, the function indicator flashes (CD player, cassette deck, turntable).

Directly before access is completed and sound is output, the indicator stops flashing and remains lit, thus allowing safe remote control even at a distance.



Data is transferred in serial by clock synchronization, and the READY and REQ lines are used for control of interruption in order to assure proper operation.

2. AV-Compatible

The CA-890 is equipped with TV and VCR input jacks and output jacks for VCR recording, making it possible to use the CA-890 to construct a full AV system.

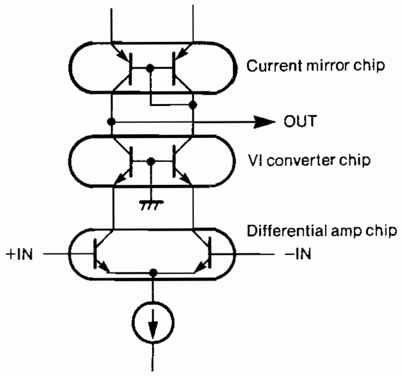
There are also DIN terminals for extracting information on the status of the audio components, which when used permit the display of the status on the TV screen.

3. High Output Power Amplifier (150W x 2)

A triple cascode is used in the first stage, preventing deterioration of the THD due to changes in the signal source impedance, that is in the volume position.

Also, as each of the three cascodes uses a 1-chip dual transistor, the structure is electrically and thermal well balanced and stable.

For the final stage, a large PC200W epitaxial planar transistor is operated by single push, obtaining 150W at 20 ~ 20kHz with THD of below 0.02%.



Triple cascode

4. Parametric Equalizer

The CA-890 uses the same highly successful parametric equalizer as was used on the CA-276.

Any two frequencies can be varied independently by ±12 dB.

The frequency range is from 20 ~ 800Hz in the low band, and from 600 ~ 20kHz for the high band. Q is fixed at 1.2.

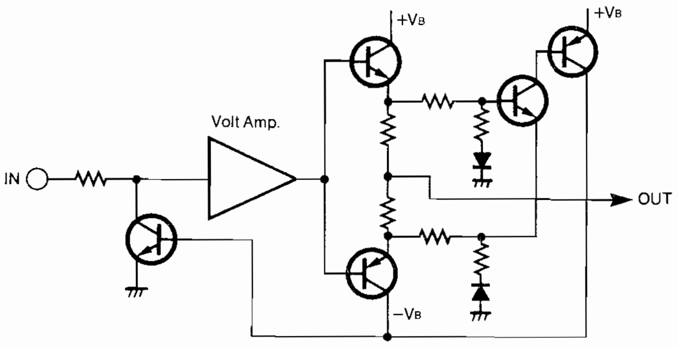
5. Protection Circuits

The CA-890 is equipped with three different protection circuits, protecting against a variety of problems.

- **DC detection (speaker protection)**
  The speaker jacks are cut off at the relay if a DC voltage of 3V or greater is generated.

- **Temperature dectection (amplifier protection)**
  If the temperature of the radiator reaches 120°C (equivalent to power transistor junction temperature of 150°C), this is detected by a posistor and the speaker jacks are cut off at the relay.

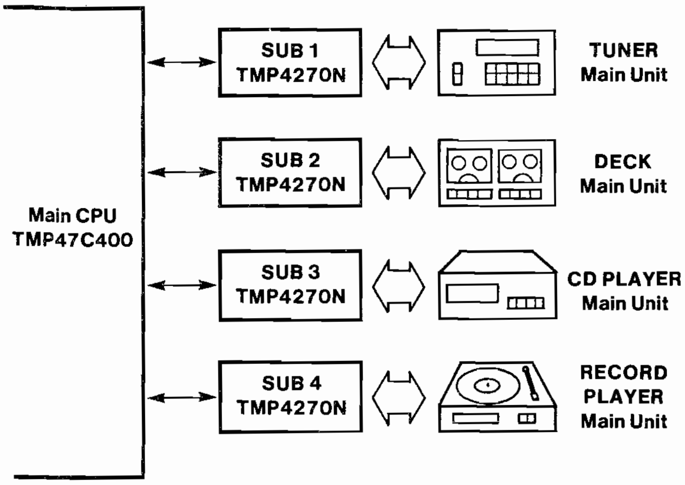
- **Load/short-circuit protection (amplifier protection)**
  If the speaker jacks are short-circuited or they are connected to a low impedance load, the ASO limiter is activated and the power transistor is protected.
  If certain conditions in the relation of the power transistor current and load impedance are fulfilled, this ASO limiter interrupts the input signals using the muting circuit.



EXPLANATION OF FUNCTION (TMP4270N)

System Outline of TMP4270N

This program operates an audio full remote control system SUB CPU.
The system configuration is as follows.



Main Micro-processor Control ...
Outputs serial data received from the main micro-processor to the appropriate mode key.

Main Unit Key Control ...
Transmits the main unit function key and Mute inputs to the main micro-processor.

Transmission/Reception

The sub micro-processor carries out 8 bit serial data reception and transmission with the main micro-processor. It takes data from the main micro-processor and emits a 100ms-wide pulse to the corresponding port. When the tact switches installed connected to each port are depressed, the corresponding data are transmitted to the main micro-processor.

The following ports are used for data transmission and reception.

Port	**PO_0**	**PO_1**	**PO_2**	**PO_3**
Assignment	DATA	CLOCK	READY	REQUEST

Transmission from Main to Sub Micro-processors.

1. Main micro-processor emits a REQ signal, and waits approximately 3ms for sub micro-processor to receive REQ signal.
2. Sub micro-processor enters data standby mode when REQ signal is active.
3. Data and clock signals are transmitted from the main micro-processor. The Sub micro-processor matches the clock signal and reads the data.
4. Main micro-processor clears the REQ and moves on to the next assignment.
5. Sub micro-processor checks data received after acknowledging the REQ CLEAR and emits 100ms-wide pulses to the port corresponding to the data code.
6. If the data is invalid or incomplete, the sub micro- processor moves on to the next assignment without doing anything.
7. Checks only signals received from the main micro-processor during generation of the 100ms-wide pulses. In the event that valid data is once again received during pulse generation, the sub micro-processor shuts the pulse off for a 30ms period and emits 100ms-wide pulses corresponding to the new data code. Reception check at this time also.

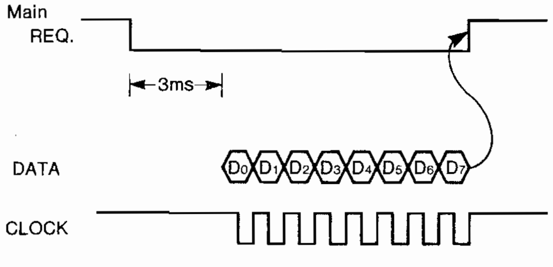
Transmission from Sub to Main Micro-processors.

(DECK, PLAYER, etc., switches depressed, or MUTE at low)

1. Sub micro-processor emits a REQ signal and waits 2ms for the unit to enter the READY mode; if the unit does not enter the READY mode within the designated time period, the sub micro-processor clears the REQ and proceeds to the next assignment.
2. When the Main micro-processor detects the REQ signal, it emits a READY signal within 2ms and enters data standby mode.
3. If after the sub micro-processor has detected a READY signal it does not detect data within a certain period of time (designated differently for each mode), it transmits data with the clock signal off. After this, it transmits both data and clock signals, waits for the READY signal to go off once data transmission has been completed, and clears REQ.
4. If the main micro-processor picks up the data, a READY signal is cleared.
5. Main micro-processor checks the data and switches the corresponding function, transmitting a code to the sub micro-processor if necesary.

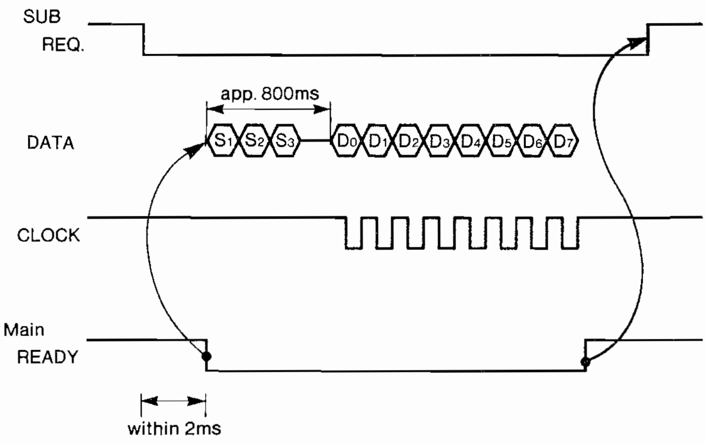
Transmission and Reception Timing

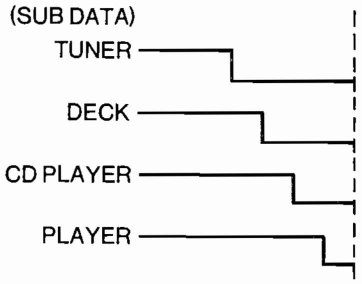
1. Transmission from Main to Sub Micro-processors


Main
REQ.
3ms
DATA
D0 D1 D2 D3 D4 D5 D6 D7
CLOCK

(SUB picks up data at signal low)

2. Transmission from Sub to Main Micro-processors


SUB
REQ.
app. 800ms
DATA
S1 S2 S3
D0 D1 D2 D3 D4 D5 D6 D7
CLOCK
Main
READY
within 2ms


(SUB DATA)
TUNER
DECK
CD PLAYER
PLAYER

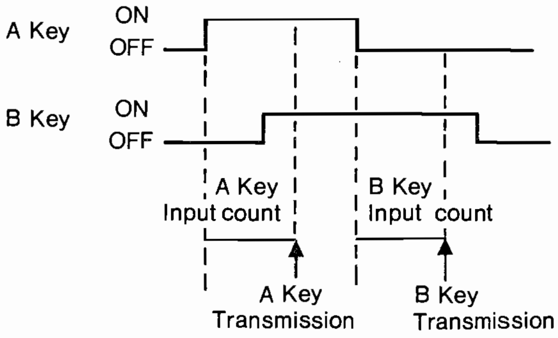
- Transmission sub-mode is determined by the data signal. Data signals already at low are transmitted directly.

Sub Micro-processor Transception and Key Read

Transception

1. Key inputs are not acknowledged during main micro-processor transception.
   Key inputs are also not acknowledged during output of received data to ports (i. e., during emission of 100ms- or 30ms-wide pulses).
2. There is no transmission during reception from the main micro-processor or during output of received data to ports.
3. In the event that new data is received from the main micro-processor during output of received data to ports, the new data is processed by shutting off port output for 30ms.

Tuner Key


A Key
ON
OFF
B Key
ON
OFF
A Key
Input count
B Key
Input count
A Key
Transmission
B Key
Transmission

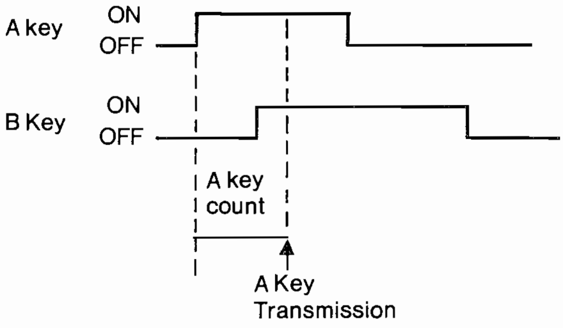
- Input count is 30ms.

1. FM/MW key functions even during other key inputs.
2. If two or more keys are pressed at the same time, the port with the smaller port number takes precedence.

Deck Key

1. Key input is received at decks 1 and 2 separately.
2. The timing of two different key inputs is the same for the Tuner. However, this is not the case for the REC- PLAY mode.
3. STOP KEY input is transmitted if 2 or more different keys are pressed at the same time (excluding REC-PLAY).
4. Only the REC key input is not transmitted.

CD Player Key


A key
ON
OFF
B Key
ON
OFF
A key
count
A Key
Transmission

- No acknowledgement if all key inputs are not turned off.

1. If two or more keys are pressed at the same time, the port with the smaller port number takes precedence.

Record Player Key

1. The timing of two different key inputs is the same for the CD Player.
2. The STOP KEY functions even during other key input.
3. If two or more keys are pressed at the same time, the port with the smaller port number takes precedence.

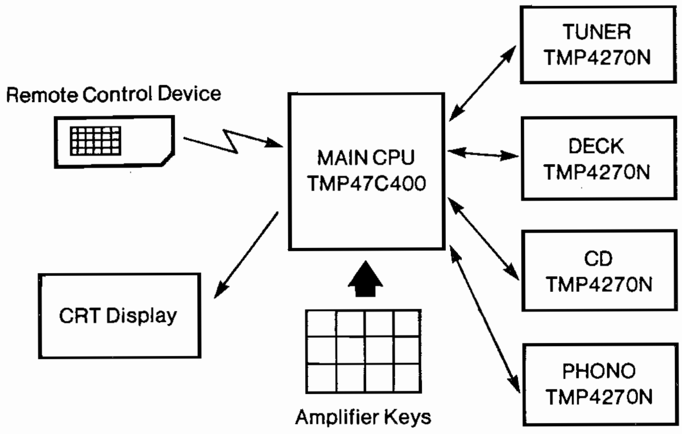
SUB CPU TMP 4270N ASSIGNMENT

Pin No.	Port No.	COMMON	TUNER	PHONO	DECK	CD
3	$\overline{RST}$					
4	$P0_0$	DaTa	DaTa	DaTa	DaTa	DaTa
5	$P0_1$	CLocK	CLocK	CLocK	CLocK	CLocK
6	$P0_2$	ReaDY	ReaDY	ReaDY	ReaDY	ReaDY
7	$P0_3$	REQuest	REQuest	REQuest	REQuest	REQuest
8	$P1_0$	–	–	STOP	STOP 1	STOP/PAUSE
9	$P1_1$	–	FM	START	FF 1	START
10	$P1_2$	–	MW	CUE UP/DOWN	FR 1	–
11	$P1_3$	–	–	/	PAUSE 1	–
12	$P2_0$	MUTE IN	MUTE IN	MUTE IN	MUTE IN	MUTE 1
13	$P2_1$	D04	Low	High	High	Low
15	$P2_2$	D06	Low	High	Low	High
16	$P3_0$	–	1	2	REC 1	–
17	$P3_1$	–	2	3	PLAY F 1	–
18	$P3_2$	–	3	4	PLAY R 1	–
19	$P3_3$	–	4	5	DECK 1	–
20	$P4_0$	–	5	6	STOP 2	–
21	$P4_1$	–	6	7	FF 2	–
22	$P4_2$	–	7	8	FR 2	–
23	$P4_3$	–	8	9	PAUSE 2	–
24	$P5_0$	–	9	–	REC 2	–
25	$P5_1$	–	10	–	PLAY F 2	PROGRAM
26	$P5_2$	–	–	–	PLAY R 2	FF (Continuous)
27	$P5_3$	–	–	–	DECK 2	FB (Continuous)
MUTE IN → DC		MUTE ON 1 (H) MUTE OFF 0 (L)	Nothing	MUTE OFF	MUTE OFF	MUTE OFF

EXPLANATION OF FUNCTION (TMP47C400N)

System Outline of TMP47C400

This program operates an audio full remote control system MAIN CPU.
The system configuration is as follows.



System Configuration

Remote Contro Device Control ...

The remote contro device uses infrared rays to signal commands that are picked up by the main unit and displayed on the CRT.

Main Unit Key Control ...

Carries out control via the main unit function keys and Mute (key inputs), transmitting the contents to the CRT.

Individual Component Key Control ...

The TMP4270N SUB CPUs installed on each component provide serial transmission, control, and transmission of contents to the CRT.

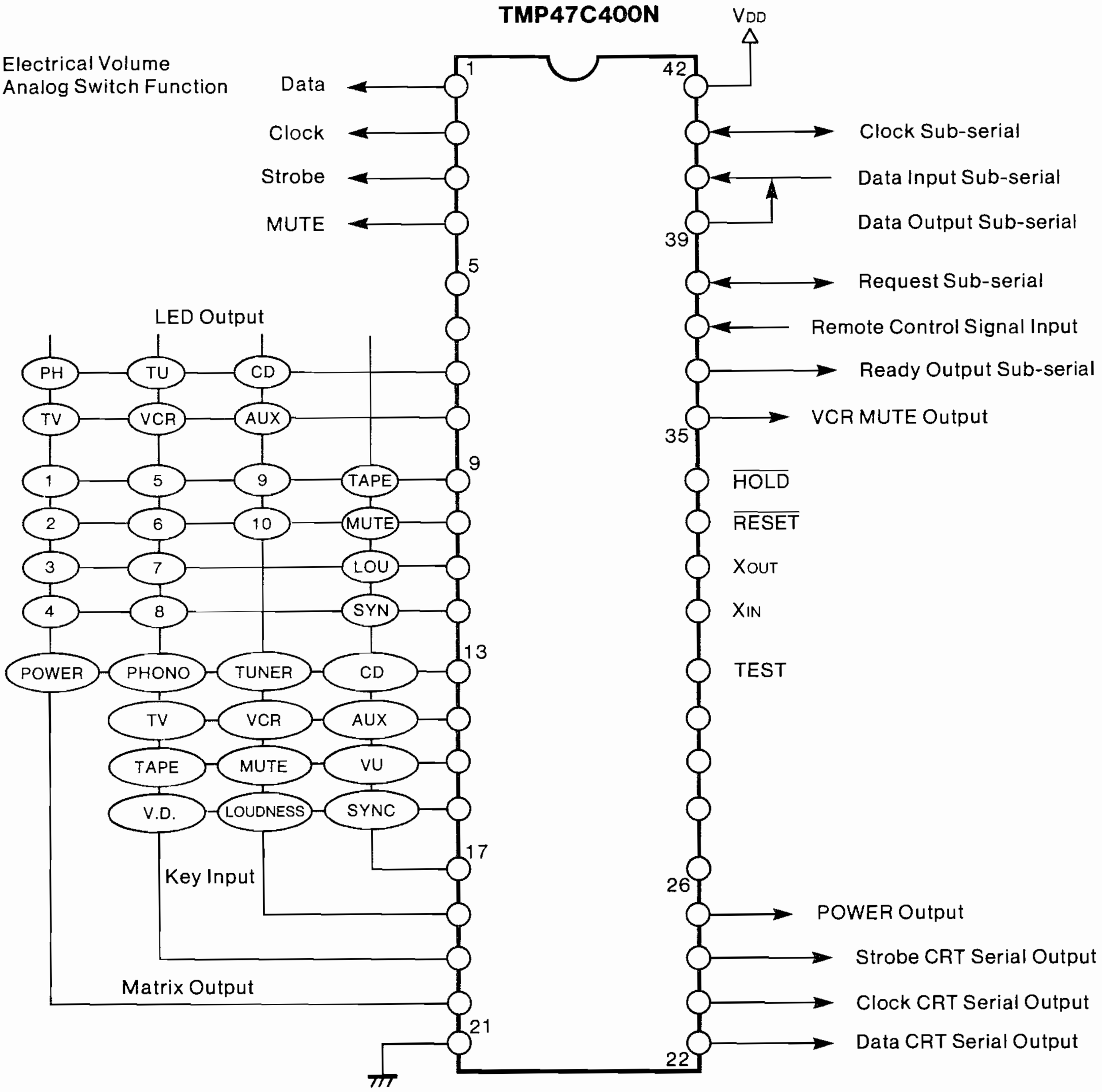
The Auto-function Function ...

With this function, all Tuner key operation, Phono and CD Start, and Deck Play can be initiated from the remote control device; also, the Function switch can be changed and a PLAY signal can be output to the designated component and a STOP signal to all other components upon serial reception from one of the SUB CPUs.

Synchro RECORD Function ...

Using either the remote control device or the deck main unit to put deck 1 on REC-PLAY with the Synchro switch in the ON position automatically puts the unit in the REC- PAUSE mode. If the CD or phonograph record is then played, a PAUSE command is output to deck 1 and the unit enters the record mode whenever the MUTE signal is low.

MAIN CPU PORT DESIGNATIONS (TMP47C400N)


TMP47C400N
VDD
Electrical Volume
Analog Switch Function
Data
Clock
Strobe
MUTE
1
5
9
13
17
21
42
39
35
26
22
LED Output
PH
TU
CD
TV
VCR
AUX
1
5
9
TAPE
2
6
10
MUTE
3
7
LOU
4
8
SYN
POWER
PHONO
TUNER
CD
TV
VCR
AUX
TAPE
MUTE
VU
V.D.
LOUDNESS
SYNC
Key Input
Matrix Output
Clock Sub-serial
Data Input Sub-serial
Data Output Sub-serial
Request Sub-serial
Remote Control Signal Input
Ready Output Sub-serial
VCR MUTE Output
HOLD
RESET
XOUT
XIN
TEST
POWER Output
Strobe CRT Serial Output
Clock CRT Serial Output
Data CRT Serial Output

RECOMMENDED TEST EQUIPMENTS

The following test equipments are recommended to completely test and align the Amplifier:

- Line Voltage Isolation Transformer
- AC DC Multimeter
- Accurately Calibrated AC Voltmeter
- Oscilloscope (Flat to 100 kHz Minimum)
- Low-Distortion Audio Sine-Wave Generator
- Harmonic Distortion Analyzer
- Two (2) Load Resistors 8-ohms, 250 Watts (Minimum Rating)

HARMONIC DISTORTION TEST

CAUTION: Limit the following tests to no more than ten minutes each. Use 8-ohm resistors, with a minimum power rating of 250 watts when connecting a load across the SPEAKERS terminal.

CONTROL SETTINGS:

Unplug the AC power cord and set the front panel controls as follows:

- POWER switch to the OFF position.
- SPEAKERS switch to the OFF position.
- LOUDNESS CONTOUR switch to the OFF position.
- PARAMETRIC EQ. switch to the DEFEAT position.
- METER RANGE switch to the 200W position.
- TAPE MONITOR switch to the SOURCE position.
- HIGH FILTER switch to the OFF position.
- SUBSONIC FILTER switch to the OFF position.
- MODE switch to the STEREO position.
- BALANCE control to the center position.
- FUNCTION switch to the AUX position.
- VOLUME DOWN button to the MINIMUM position.
- LEFT CHANNEL DRIVEN

ONE CHANNEL DRIVEN:

1) Connect a low distortion audio generator to LEFT AUX IN jack. Set generator frequency to 1 kHz and output to minimum.

2) Connect an 8-ohm load resistor between SPEAKERS SYSTEM-A LEFT and COM terminals. Connect a Harmonic Distortion Analyzer and an AC VTVM in parallel across the 8-ohm load.

3) Connect the AC power cord and set SPEAKERS switch to ON position. Set the volume level to a MAX level by Pressing the VOLUME UP button.

4) Increase generator output for 150 Watts RMS (34.6 volts across the 8-ohm load). Harmonic Distortion Analyzer should measure 0.02 % distortion or less.

5) Repeat steps 1 through 4 for RIGHT CHANNEL.

BOTH CHANNELS DRIVEN

Connect 8-ohm load resistors across LEFT and RIGHT SPEAKERS SYSTEM-A terminals. Adjust generator output and “VOLUME” control for 150 watts at Left and Right Channels (34.6 volts across the 8-ohm loads). Harmonic Distortion Analyzer should measure 0.02 % distortion or less at each channel.

CAUTION: This precision high-fidelity instrument should be serviced only by qualified personnel, trained in the repair of transistor equipment and printed circuitry.

POWER AMPLIFIER ADJUSTMENT

BEFORE ADJUSTMENT

Unplug the AC power cord and set the front panel controls as follows:

- Power switch to the OFF position.
- Set the SPEAKERS switch to the OFF position.
- Set the volume level to a minimum level by Pressing the VOLUME DOWN button.
- IDLING CURRENT ADJUSTMENT VR501/VR502 (on the Main Amplifier P.C.Borad) setting to mechanical center position.
- Connect the AC power cord and Power switch to the ON position.

IDLING CURRENT ADJUSTMENT

This adjustment is very sensitive to changes in ambient temperature. Allow set to operate for 5 minutes before attempting this adjustment.

LEFT CHANNEL AMPLIFIER

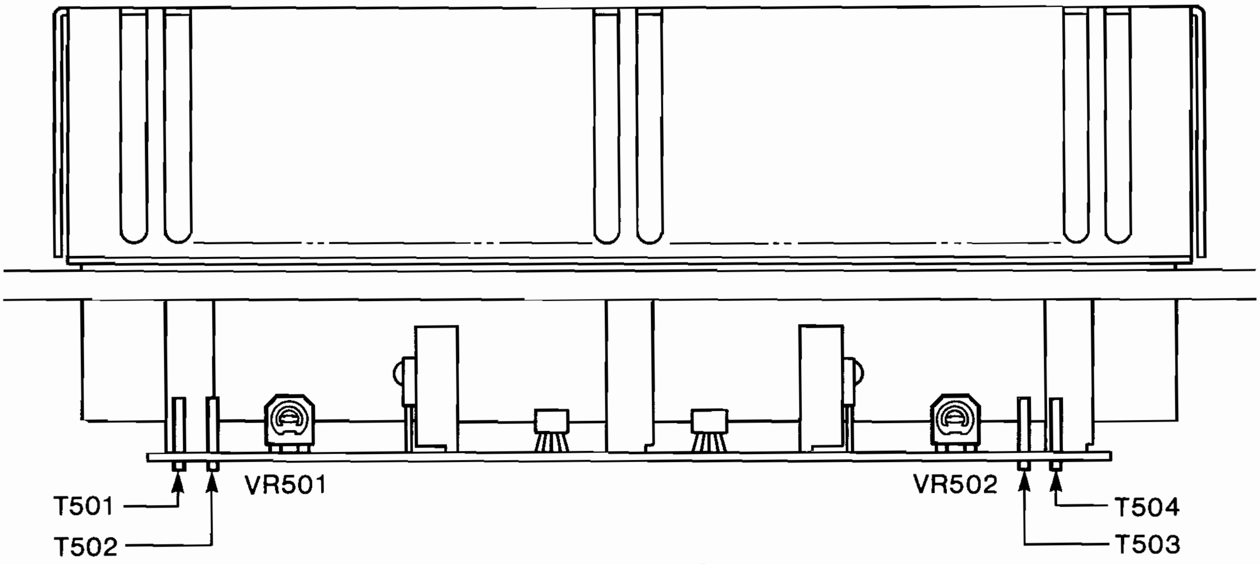
1) Connect the DC Voltmeter between Pins T501 and T502 on the Main Amplifier P.C.Board.
2) Adjust the VR501 for an indication of 15mV (10mV ~ 35mV) on the DC Voltmeter.

RIGHT CHANNEL AMPLIFIER

1) Connect the DC Voltmeter between Pins T503 and T504 on the Main Amplifier P.C.Board.
2) Adjust the VR502 for an indication of 15mV (10mV ~ 35mV) on the DC Voltmeter.

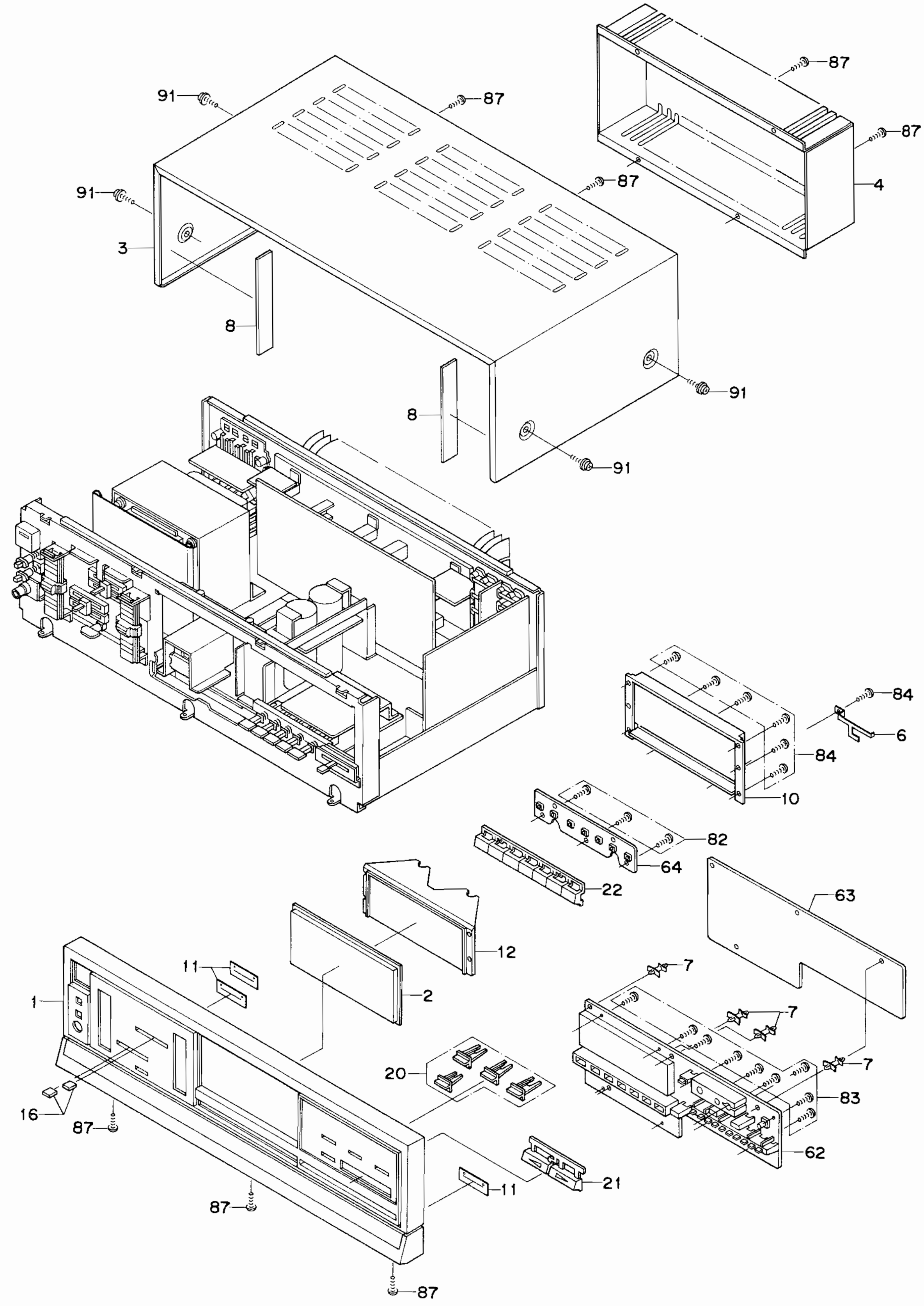
AMPLIFIER P.C.BOARD LAYOUT ALIGNMENT POINTS

(TOP VIEW)



Main Amplifier P.C.Board

CABINET & CHASSIS EXPLODED VIEW (1)



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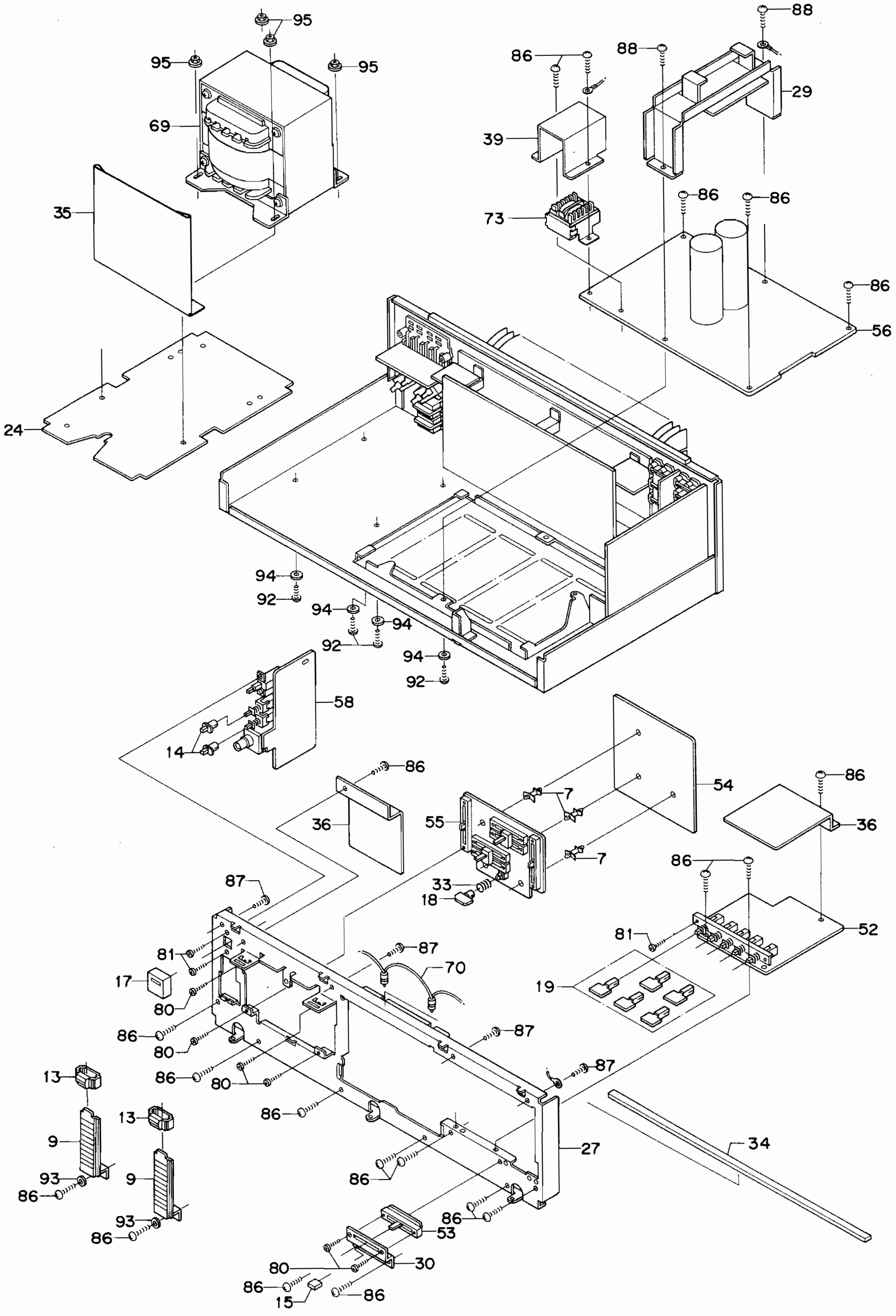
CABINET & CHASSIS EXPLODED VIEW (2)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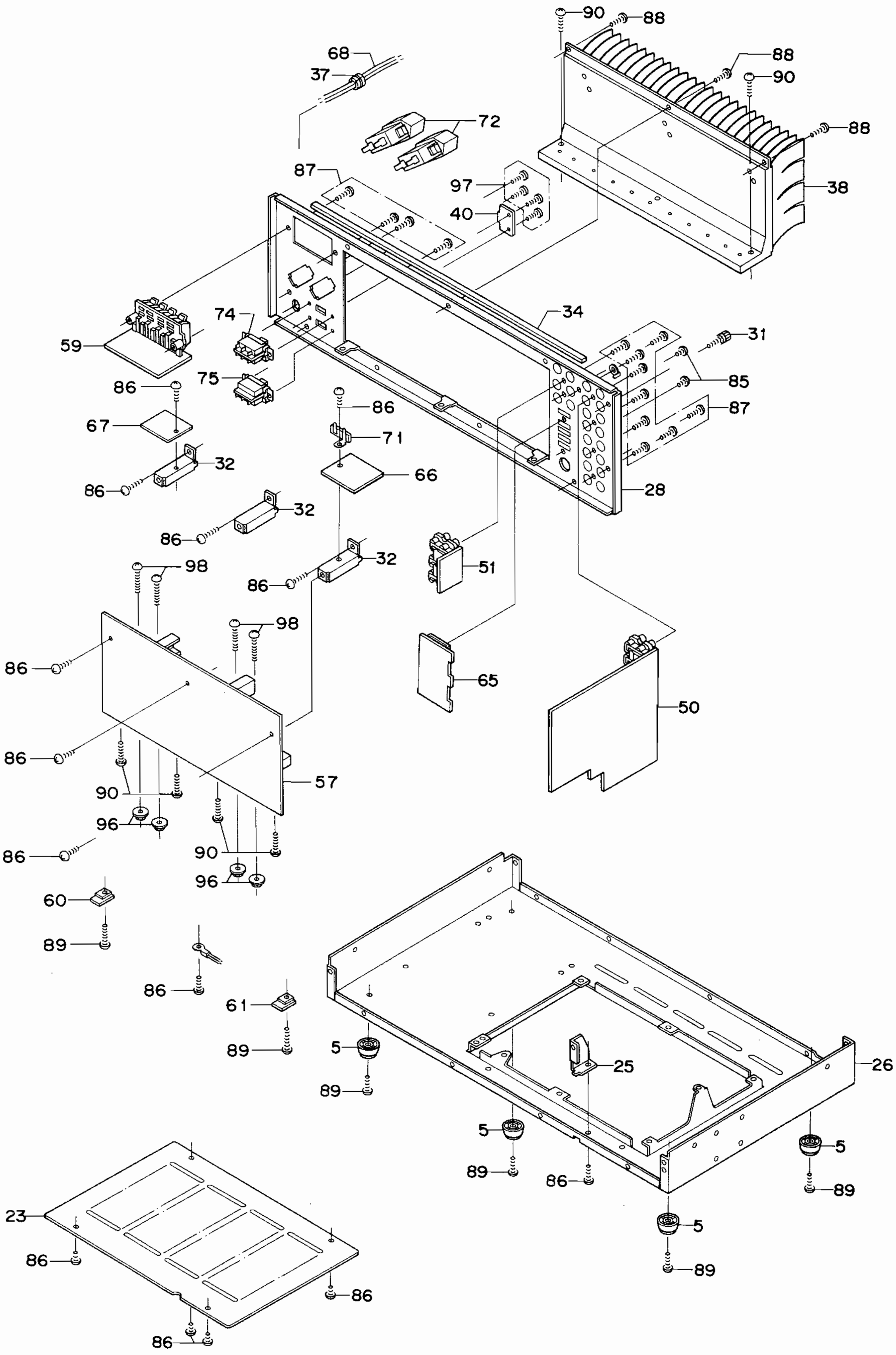
CABINET & CHASSIS EXPLODED VIEW (3)



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26
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CABINET & CHASSIS PARTS LIST

PACKING PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	3-9415-10300	Bag Polyethylene	1
	131-6-1169-17903	Box Corrugate-Exp.	1
	131-6-3009-35980	Pad	1
	131-6-3009-35990	Pad	1
	131-6-3069-16350	Patching Sheet	1
	131-6-4559-11200	Serial No. Sheet	2
	131-6-9459-00300	Rubber Band	1
	141-6-2519-22290	Sheet Polyethylene	1

ACCESSORIES PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	4-1929-20234	REM-890 (EUR)	1
	131-6-2719-10401	Bag Fan	1
	142-6-4119-32892	Explanatory Booklet	1

CABINET & CHASSIS PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	4-2379-21520	Terminal Lug	2
	131-6-4559-11200	Serial No. Sheet	1
1	131-0-1016-45500	Panel Decorate Assy	1
	131-2-1203-65100	Panel Control A	1
	131-2-1203-65200	Panel Control B	1
	131-2-1203-65500	Panel Control	1
	131-2-3608-16600	Filter	1
2	131-2-1205-29400	Decorate Plate Dial	1
3	131-2-1410-32700	Cover	1
4	131-2-1410-34104	Cover Heat Sink	1
5	131-2-1801-13300	Leg	4
6	131-2-2306-10700	Metal Mount Ground	1
7	131-2-3614-22200	Mount P.C.B.	7
8	131-2-4208-49800	Spacer	2
9	131-2-6113-51200	Shelter Equalizer	2
10	131-0-1007-00600	Indicator Assy	1
	131-2-6113-52600	Shelter	1
	131-2-6308-24601	Filter FL	1
11	131-2-6113-52700	Shelter	3
12	131-2-6308-24301	Filter	1
13	131-0-1001-64200	Knob EQ. Assy	2
	131-2-1601-90400	Knob A	1
	131-2-1601-96200	Knob D	1
14	131-2-1601-69600	Knob (Speaker)	2
15	131-2-1601-71000	Knob (Balance)	1
16	131-2-1601-71001	Knob (Equalizer)	2
17	131-2-1601-85202	Knob (Power)	1
18	131-2-1601-95900	Knob A	1
19	131-2-1601-96100	Knob C	5
20	131-2-1601-96300	Knob Tact	4
21	131-2-1601-96400	Knob (Volume)	1
22	131-2-1601-96600	Knob (Function)	1
23	131-2-1105-32000	Plate Bottom	1
24	131-2-3202-15600	Metal Reinf	1
25	131-2-3202-15700	Metal Reinf Front	1
26	131-2-3301-32000	Chassis	1
27	131-2-3305-36200	Panel Front	1
28	131-2-3306-40502	Panel Rear	1
29	131-2-3605-10700	Metal Mount Chemical Condenser	1
30	131-2-3701-30700	Mount Electrical Part	1
31	131-2-4201-17800	Screw Ground	1
32	131-2-4208-49400	Spacer	3
33	131-2-5101-24600	Spring GND	1
34	131-2-5205-15300	Cushion	2
35	131-2-6103-25200	Plate Shield	1
36	131-2-6103-25300	Cover Shield	2
37	131-2-6111-14200	Bushing (Power Cord)	1
38	131-2-6201-36501	Plate Heat Sink	1
39	131-2-6108-12700	Cover Sever	1
40	131-2-7104-01000	Plate Pad Switch	1

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Q'ty
50	141-0-1939-14961	Input P.C.B. Assy	1
51	141-0-1939-14971	Pin Jack P.C.B. Assy	1
52	141-0-1939-14980	Filter Amp. P.C.B. Assy	1
53	141-0-1939-14981	Balance P.C.B. Assy	1
54	141-0-1939-14991	Parametric Amp. P.C.B. Assy	1
55	141-0-1939-15000	Parametric Volume P.C.B. Assy	1
56	141-0-1939-14901	Main P.C.B. Assy	1
57	141-0-1939-14924	Power Supply P.C.B. Assy	1
58	141-0-1939-14932	Speaker Switch P.C.B. Assy	1
59	141-0-1939-14941	Speaker Terminal P.C.B. Assy	1
60	141-0-1939-14910	Bias P.C.B. Assy (Left)	1
61	141-0-1939-14911	Bias P.C.B. Assy (Right)	1
62	141-0-1939-15010	Front Control P.C.B. Assy	1
63	141-0-1939-15022	Micom P.C.B. Assy	1
64	141-0-1939-15030	Function Switch P.C.B. Assy	1
65	141-0-1939-15040	Remote Control P.C.B. Assy	1
66	141-0-1939-15021	Sub Control Switch P.C.B. Assy	1
67	141-0-1939-14923	Fuse P.C.B. Assy	1
68	⚠ 4-2432-00400	Power Cord	1
69	⚠ 4-2512-24420	Power Trans (Main)	1
70	4-6129-70711	Lamp	1
71	4-2372-00410	Terminal Lug 1-1PL	1
72	⚠ 4-2352-00450	AC Socket (AC Outlet)	2
73	⚠ 4-2512-23731	Power Trans (Sub)	1
74	⚠ 4-2312-01020	Switch Slide (AC Selector) [SW901]	1
75	⚠ 4-2312-02650	Switch Slide 3P (AC Selector) [SW902]	1

SCREW PARTS LIST

Ref. No.	Part No.	Description	Q'ty
80	101-3-1302-00311	Screw, Pan Hd., +M2.0x3	6
81	101-3-1303-00611	Screw, Pan Hd., +M3.0x6	3
82	143-3-1902-60611	Screw, Brazier Hd. Tapping-B, +M2.6x6	3
83	143-3-1902-60811	Screw, Brazier Hd. Tapping-B, +M2.6x8	9
84	143-3-1902-61011	Screw, Brazier Hd. Tapping-B, +M2.6x10	7
85	143-3-1903-00618	Screw, Brazier Hd. Tapping-B, +M3.0x6	2
86	143-3-1903-00611	Screw, Brazier Hd. Tapping-B, +M3.0x6	34
87	143-3-1903-00818	Screw, Brazier Hd. Tapping-B, +M3.0x8	24
88	143-3-1903-00811	Screw, Brazier Hd. Tapping-B, +M3.0x8	5
89	143-3-1903-01011	Screw, Brazier Hd. Tapping-B, +M3.0x10	6
90	143-3-1903-01211	Screw, Brazier Hd. Tapping-B, +M3.0x12	6
91	141-2-4219-38400	Screw, Bind Hd. Tapping-B, +M4.0x8 Sems	4
92	131-2-4201-23402	Screw, (buta C Tite)	4
93	131-2-4203-83200	Washer, 3.2x8x0.5	2
94	131-2-4203-84213	Washer, 4.2x13x1.0,z1	4
95	131-2-4202-12904	Nut	4
96	131-2-4202-12900	Flange Nut	4
97	101-3-1303-00618	Screw, Pan Hd., +M3.0x6	4
98	101-3-1303-02511	Screw, Pan Hd., +M3.0x25	4

Ref. No.	Part No.	Description				Q'ty
C901	CC4-7-3500-ZG00C	Ceramic	0.047µF	50V	+80,-20%	1
C902	CC1-5-0500-KD00C	Ceramic	15pF	50V	±10%	1
C903	CC1-5-0500-KD00C	Ceramic	15pF	50V	±10%	1
R901	401 012 4503	CARBON 100 JA 1/4W				1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	INPUT P.C.B. ASSY		
50	141-0-1939-14961	Input P.C.B. Assy	1
	4-2262-26850	Input P.C.B.	1
X102	4-2369-73150	Connector 5P	1
	4-2352-01650	Pin Jack 4P (CD, TV) (VCR) (Tape-1)	3
	4-2352-01653	Pin Jack 4P W/shield (Phono, Tuner)	1
	CAPACITORS		
C101	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C102	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C103	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C104	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C105	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C106	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C107	CD2-2-763A-0006V	Electrolytic 220μF 6.3V	1
C108	CD2-2-763A-0006V	Electrolytic 220μF 6.3V	1
C109	CM5-6-3500-J00TV	Mylar 0.056μF 50V ±5%	1
C110	CM5-6-3500-J00TV	Mylar 0.056μF 50V ±5%	1
C111	CM1-5-3500-J00TV	Mylar 0.015μF 50V ±5%	1
C112	CM1-5-3500-J00TV	Mylar 0.015μF 50V ±5%	1
C113	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C114	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C115	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C116	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C117	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C118	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C119	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C120	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C121	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C122	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C123	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C124	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C125	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C126	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C127	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C128	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C129	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C130	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C131	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C132	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C133	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C134	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C135	CD1-0-7160-0001V	Electrolytic 100μF 16V	1
C136	CD1-0-7160-0001V	Electrolytic 100μF 16V	1
C137	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C138	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C139	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
	SEMICONDUCTORS		
IC101	4-2069-74990	IC, M 5220 P	1
IC102	4-2069-75240	IC, TC 9163 N	1
Q101	203-5-5251-57160	Transistor, 2SC 1571	1
Q102	203-5-5251-57160	Transistor, 2SC 1571	1
Q103	4-2039-70950	Transistor, 2SC 2878	1
Q104	4-2039-70950	Transistor, 2SC 2878	1
Q105	203-5-5000-53660	Transistor, 2SC 536	1
Q106	203-5-7230-60860	Transistor, 2SA 608	1
	RESISTORS		
R101	401 024 7004	CARBON 1K JA 1/6W	1
R102	401 024 7004	CARBON 1K JA 1/6W	1
R103	401 024 7707	CARBON 100K JA 1/6W	1
R104	401 024 7707	CARBON 100K JA 1/6W	1
R105	401 024 7707	CARBON 100K JA 1/6W	1
R106	401 024 7707	CARBON 100K JA 1/6W	1
R107	401 024 6700	CARBON 100 JA 1/6W	1
R108	401 024 6700	CARBON 100 JA 1/6W	1
R109	401 027 3003	CARBON 56K JA 1/6W	1
R110	401 027 3003	CARBON 56K JA 1/6W	1
R111	401 026 9907	CARBON 4.7K JA 1/6W	1
R112	401 026 9907	CARBON 4.7K JA 1/6W	1
R113	401 024 7707	CARBON 100K JA 1/6W	1
R114	401 024 7707	CARBON 100K JA 1/6W	1
R115	401 024 7004	CARBON 1K JA 1/6W	1
R116	401 024 7004	CARBON 1K JA 1/6W	1
R117	401 024 7004	CARBON 1K JA 1/6W	1
R118	401 024 7004	CARBON 1K JA 1/6W	1
R119	401 024 7004	CARBON 1K JA 1/6W	1
R120	401 024 7004	CARBON 1K JA 1/6W	1
R121	401 024 7004	CARBON 1K JA 1/6W	1
R122	401 024 7004	CARBON 1K JA 1/6W	1
R123	401 024 7004	CARBON 1K JA 1/6W	1
R124	401 024 7004	CARBON 1K JA 1/6W	1
R125	401 024 7004	CARBON 1K JA 1/6W	1
R126	401 024 7004	CARBON 1K JA 1/6W	1
R127	401 024 7004	CARBON 1K JA 1/6W	1
R128	401 024 7004	CARBON 1K JA 1/6W	1
R129	401 027 6103	CARBON 680K JA 1/6W	1
R130	401 027 6103	CARBON 680K JA 1/6W	1
R131	401 027 6103	CARBON 680K JA 1/6W	1
R132	401 027 6103	CARBON 680K JA 1/6W	1
R133	401 027 6103	CARBON 680K JA 1/6W	1
R134	401 027 6103	CARBON 680K JA 1/6W	1
R135	401 024 7707	CARBON 100K JA 1/6W	1
R136	401 024 7707	CARBON 100K JA 1/6W	1
R137	401 027 6103	CARBON 680K JA 1/6W	1
R138	401 027 6103	CARBON 680K JA 1/6W	1
R139	401 027 6103	CARBON 680K JA 1/6W	1
R140	401 027 6103	CARBON 680K JA 1/6W	1
R141	401 027 6103	CARBON 680K JA 1/6W	1
R142	401 027 6103	CARBON 680K JA 1/6W	1
R143	401 027 6103	CARBON 680K JA 1/6W	1
R144	401 027 6103	CARBON 680K JA 1/6W	1
R145	401 027 6103	CARBON 680K JA 1/6W	1
R146	401 027 6103	CARBON 680K JA 1/6W	1
R147	401 026 9907	CARBON 4.7K JA 1/6W	1
R148	401 026 9907	CARBON 4.7K JA 1/6W	1
R149	401 027 0507	CARBON 470K JA 1/6W	1
R150	401 027 0507	CARBON 470K JA 1/6W	1
R151	401 024 7400	CARBON 10K JA 1/6W	1
R152	401 024 7400	CARBON 10K JA 1/6W	1
R153	401 025 7805	CARBON 2.2K JA 1/6W	1
R154	401 025 7805	CARBON 2.2K JA 1/6W	1
R155	401 024 7400	CARBON 10K JA 1/6W	1
R156	401 024 7400	CARBON 10K JA 1/6W	1
R160	401 016 2604	CARBON 220 JA 1/4W	1
R161	401 016 2604	CARBON 220 JA 1/4W	1
R162	401 024 7707	CARBON 100K JA 1/6W	1
R163	401 024 7400	CARBON 10K JA 1/6W	1
	PIN JACK P.C.B. ASSY		
51	141-0-1939-14971	Pin Jack P.C.B. Assy	1
	4-2262-26860	Pin Jack P.C.B.	1
	4-2359-78651	Pin Jack 6P (Tape-2, Aux)	1
	CAPACITORS		
C141	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
C142	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C143	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C144	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C145	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C146	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1

RESISTORS

Ref. No.	Part No.	Description	Q'ty
R171	401 024 7004	CARBON 1K JA 1/6W	1
R172	401 024 7004	CARBON 1K JA 1/6W	1
R173	401 024 7004	CARBON 1K JA 1/6W	1
R174	401 024 7004	CARBON 1K JA 1/6W	1
R175	401 024 7004	CARBON 1K JA 1/6W	1
R176	401 024 7004	CARBON 1K JA 1/6W	1

FILTER AMP. P.C.B. ASSY

Ref. No.	Part No.	Description	Q'ty
52	141-0-1939-14980	Filter Amp. P.C.B. Assy	1
	4-2262-26870	Filter Amp. P.C.B.	1
SW201	4-2319-78900	Push Switch 5Key (Tape-2, Meter, Mode, High Filter, Subsonic Filter)	1
J803P	4-2369-73140	Connector 4P	1
X201	4-2369-73130	Connector 3P	1

CAPACITORS

Ref. No.	Part No.	Description	Q'ty
C201	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C202	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C203	CC1-8-1500-KD00C	Ceramic 180pF 50V ±10%	1
C204	CC1-8-1500-KD00C	Ceramic 180pF 50V ±10%	1
C205	CM3-3-3500-J00TV	Mylar 0.033μF 50V ±5%	1
C206	CM3-3-3500-J00TV	Mylar 0.033μF 50V ±5%	1
C207	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C208	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C209	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C210	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C211	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C212	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C213	CD4-7-663A-0001V	Electrolytic 47μF 6.3V	1
C214	CD4-7-663A-0001V	Electrolytic 47μF 6.3V	1
C215	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C216	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C217	CM1-0-3500-J00TV	Mylar 0.01μF 50V ±5%	1
C218	CM1-0-3500-J00TV	Mylar 0.01μF 50V ±5%	1
C219	CM2-2-4500-J00TV	Mylar 0.22μF 50V ±5%	1
C220	CM2-2-4500-J00TV	Mylar 0.22μF 50V ±5%	1
C221	CM2-2-4500-J00TV	Mylar 0.22μF 50V ±5%	1
C222	CM2-2-4500-J00TV	Mylar 0.22μF 50V ±5%	1
C223	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C224	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C225	CC1-0-0500-JD01R	Ceramic 10pF 50V ±5%	1
C226	CC1-0-0500-JD01R	Ceramic 10pF 50V ±5%	1
C227	CD1-0-6160-0001V	Electrolytic 10μF 16V	1
C228	CD1-0-6160-0001V	Electrolytic 10μF 16V	1
C229	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C230	CD4-7-5250-0001V	Electrolytic 4.7μF 25V	1
C240	CD1-0-7160-0006V	Electrolytic 100μF 16V	1
C241	CD1-0-7160-0006V	Electrolytic 100μF 16V	1
C242	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1

SEMICONDUCTORS

Ref. No.	Part No.	Description	Q'ty
IC201	4-2069-74770	IC, TC 9177 P	1
IC202	206-5-2726-45810	IC, LA 6458 DS	1
Q201	203-5-5251-57160	Transistor, 2SC 1571	1
Q202	203-5-5251-57160	Transistor, 2SC 1571	1
Q203	203-5-7230-60860	Transistor, 2SA 608	1
Q204	203-5-7230-60860	Transistor, 2SA 608	1

RESISTORS

Ref. No.	Part No.	Description	Q'ty
R201	401 026 7002	CARBON 3.9K JA 1/6W	1
R202	401 026 7002	CARBON 3.9K JA 1/6W	1
R203	401 026 1604	CARBON 270K JA 1/6W	1
R204	401 026 1604	CARBON 270K JA 1/6W	1
R205	401 027 3003	CARBON 56K JA 1/6W	1
R206	401 027 3003	CARBON 56K JA 1/6W	1
R207	401 025 8703	CARBON 220K JA 1/6W	1
R208	401 025 8703	CARBON 220K JA 1/6W	1
R209	401 025 8703	CARBON 220K JA 1/6W	1
R210	401 025 8703	CARBON 220K JA 1/6W	1
R211	401 024 7004	CARBON 1K JA 1/6W	1
R212	401 024 7004	CARBON 1K JA 1/6W	1
R213	401 027 5502	CARBON 6.8K JA 1/6W	1
R214	401 027 5502	CARBON 6.8K JA 1/6W	1
R215	401 026 4308	CARBON 3.3K JA 1/6W	1
R216	401 026 4308	CARBON 3.3K JA 1/6W	1
R219	401 024 8001	CARBON 1M JA 1/6W	1
R220	401 024 8001	CARBON 1M JA 1/6W	1
R221	401 026 1307	CARBON 27K JA 1/6W	1
R222	401 026 1307	CARBON 27K JA 1/6W	1
R223	401 024 7707	CARBON 100K JA 1/6W	1
R224	401 024 7707	CARBON 100K JA 1/6W	1
R225	401 024 7707	CARBON 100K JA 1/6W	1
R226	401 024 7707	CARBON 100K JA 1/6W	1
R227	401 019 1901	CARBON 3.9K JA 1/4W	1
R228	401 026 7002	CARBON 3.9K JA 1/6W	1
R229	401 025 1902	CARBON 15K JA 1/6W	1
R230	401 025 1902	CARBON 15K JA 1/6W	1
R231	401 025 7409	CARBON 220 JA 1/6W	1
R232	401 025 7409	CARBON 220 JA 1/6W	1
R233	401 024 7707	CARBON 100K JA 1/6W	1
R234	401 024 7707	CARBON 100K JA 1/6W	1
R240	401 016 2604	CARBON 220 JA 1/4W	1
R241	401 016 2604	CARBON 220 JA 1/4W	1

BALANCE P.C.B. ASSY

Ref. No.	Part No.	Description	Q'ty
53	141-0-1939-14981	Balance P.C.B. Assy	1
	4-2262-26871	Balance P.C.B.	1
VR201	4-2229-76590	Slide Volume (W-50kΩ, Balance)	1

PARAMETRIC AMP. P.C.B. ASSY

Ref. No.	Part No.	Description	Q'ty
54	141-0-1939-14991	Parametric Amp. P.C.B. Assy	1
	4-2262-26880	Parametric Amp. P.C.B.	1
X301	131-0-4006-31405	Cord Assy	1
X302	4-2359-79254	Connector 3P Assy	1

CAPACITORS

Ref. No.	Part No.	Description	Q'ty
C301	CD1-0-7100-0006V	Electrolytic 100μF 10V	1
C302	CD1-0-7100-0006V	Electrolytic 100μF 10V	1
C303	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C304	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
C305	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C306	CC1-0-1500-KD00C	Ceramic 100pF 50V ±10%	1
C307	CM4-7-2500-J00SV	Mylar 0.0047μF 50V ±5%	1
C308	CM4-7-2500-J00SV	Mylar 0.0047μF 50V ±5%	1
C309	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C310	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
C311	CD1-0-7100-0006V	Electrolytic 100μF 10V	1
C312	CD1-0-7100-0006V	Electrolytic 100μF 10V	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
C313	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C314	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C315	CC1-0-1500-KD00C	Ceramic	100pF	50V	±10%	1
C316	CC1-0-1500-KD00C	Ceramic	100pF	50V	±10%	1
C317	CC1-8-1500-KD00C	Ceramic	180pF	50V	±10%	1
C318	CC1-8-1500-KD00C	Ceramic	180pF	50V	±10%	1
C319	CM4-7-3500-J00TV	Mylar	0.047μF	50V	±5%	1
C320	CM4-7-3500-J00TV	Mylar	0.047μF	50V	±5%	1
C323	CD1-0-7160-0006V	Electrolytic	100μF	16V		1
C324	CD1-0-7160-0006V	Electrolytic	100μF	16V		1
C333	CD1-0-7100-0006V	Electrolytic	100μF	10V		1
C334	CD1-0-7100-0006V	Electrolytic	100μF	10V		1
C335	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C336	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C337	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80,-20%	1
C338	CC1-0-3500-ZG00C	Ceramic	0.01μF	50V	+80,-20%	1

SEMICONDUCTORS

D301	202-5-0220-01010	Diode, DSF 10 C	1
D302	202-5-0220-01010	Diode, DSF 10 C	1
D303	202-5-0220-01010	Diode, DSF 10 C	1
D304	202-5-0220-01010	Diode, DSF 10 C	1
IC301	206-5-2726-45810	IC, LA 6458 DS	1
IC302	206-5-2726-45810	IC, LA 6458 DS	1
IC303	206-5-2726-45810	IC, LA 6458 DS	1
IC304	206-5-2726-45810	IC, LA 6458 DS	1
IC305	206-5-2726-45810	IC, LA 6458 DS	1
IC306	206-5-2726-45810	IC, LA 6458 DS	1
IC307	206-5-2726-45810	IC, LA 6458 DS	1

RESISTORS

R303	401 016 4806	CARBON 22K JA 1/4W	1
R304	401 025 8208	CARBON 22K JA 1/6W	1
R305	401 026 1000	CARBON 2.7K JA 1/6W	1
R306	401 017 1804	CARBON 2.7K JA 1/4W	1
R307	401 025 8208	CARBON 22K JA 1/6W	1
R308	401 025 8208	CARBON 22K JA 1/6W	1
R309	401 021 4105	CARBON 56K JA 1/4W	1
R310	401 021 4105	CARBON 56K JA 1/4W	1
R311	401 025 1902	CARBON 15K JA 1/6W	1
R312	401 025 1902	CARBON 15K JA 1/6W	1
R313	401 018 3807	CARBON 3.3K JA 1/4W	1
R314	401 018 3807	CARBON 3.3K JA 1/4W	1
R315	401 018 3807	CARBON 3.3K JA 1/4W	1
R316	401 018 3807	CARBON 3.3K JA 1/4W	1
R317	401 016 4806	CARBON 22K JA 1/4W	1
R318	401 025 8208	CARBON 22K JA 1/6W	1
R319	401 025 8208	CARBON 22K JA 1/6W	1
R320	401 016 4806	CARBON 22K JA 1/4W	1
R321	401 024 7004	CARBON 1K JA 1/6W	1
R322	401 024 7004	CARBON 1K JA 1/6W	1
R323	401 025 8208	CARBON 22K JA 1/6W	1
R324	401 025 8208	CARBON 22K JA 1/6W	1
R325	401 026 1000	CARBON 2.7K JA 1/6W	1
R326	401 026 1000	CARBON 2.7K JA 1/6W	1
R327	401 025 8208	CARBON 22K JA 1/6W	1
R328	401 025 8208	CARBON 22K JA 1/6W	1
R329	401 021 3009	CARBON 5.6K JA 1/4W	1
R330	401 021 3009	CARBON 5.6K JA 1/4W	1
R331	401 024 9305	CARBON 1.2K JA 1/6W	1
R332	401 024 9305	CARBON 1.2K JA 1/6W	1
R333	401 017 1804	CARBON 2.7K JA 1/4W	1
R334	401 017 1804	CARBON 2.7K JA 1/4W	1
R335	401 017 1804	CARBON 2.7K JA 1/4W	1

Ref. No.	Part No.	Description	Q'ty
R336	401 017 1804	CARBON 2.7K JA 1/4W	1
R337	401 016 4806	CARBON 22K JA 1/4W	1
R338	401 025 8208	CARBON 22K JA 1/6W	1
R339	401 025 8208	CARBON 22K JA 1/6W	1
R340	401 016 4806	CARBON 22K JA 1/4W	1
R341	401 024 7004	CARBON 1K JA 1/6W	1
R342	401 024 7004	CARBON 1K JA 1/6W	1
R347	401 016 2604	CARBON 220 JA 1/4W	1
R348	401 016 2604	CARBON 220 JA 1/4W	1

PARAMETRIC VOLUME P.C.B. ASSY

55	141-0-1939-15000	Parametric Volume P.C.B. Assy	1
	4-2262-26890	Parametric Volume P.C.B.	1
VR301	4-2229-76360	Slide Volume (B-50kΩx2, Parametric EQ.)	1
VR302	4-2229-76360	Slide Volume (B-50kΩx2, Parametric EQ.)	1
VR303	4-2229-76350	Slide Volume (A-100kΩx2, Low Band)	1
VR304	4-2229-76340	Slide Volume (A-100kΩx2, Low Band)	1
VR305	4-2229-76350	Slide Volume (A-100kΩx2, High Band)	1
VR306	4-2229-76340	Slide Volume (A-100kΩx2, High Band)	1
SW301	4-2319-75331	Push Switch (Parametric EQ.)	1
	131-2-4114-13400	Support Shaft	2

CAPACITORS

C331	CD4-7-5250-0001V	Electrolytic	4.7μF	25V	1
C332	CD4-7-5250-0001V	Electrolytic	4.7μF	25V	1

RESISTORS

R351	401 024 7707	CARBON 100K JA 1/6W	1
R352	401 024 7707	CARBON 100K JA 1/6W	1

MAIN P.C.B. ASSY

56	141-0-1939-14901	Main P.C.B. Assy	1
	4-2262-26790	Main P.C.B.	1
	4-2039-72050	Posistor PTH487A-BB	1
VR501	4-2229-73353	Potentiometer (B-100Ω)	1
VR502	4-2229-73353	Potentiometer (B-100Ω)	1
F501	⚠ 4-2349-70620	Protector Icp-5 (0.25A)	1
F502	⚠ 4-2349-70620	Protector Icp-5 (0.25A)	1
F503	⚠ 4-2349-70620	Protector Icp-5 (0.25A)	1
F504	⚠ 4-2349-70620	Protector Icp-5 (0.25A)	1
L501	4-2552-00650	AF Coil (2μH)	1
L502	4-2552-00650	AF Coil (2μH)	1
J501P	4-2359-79238	Connector 8P Assy	1
J502P	4-2359-77390	Connector 3P Assy	1
X302	4-2369-73130	Connector 3P	1
	111-2-6220-11100	Wire Wrap Terminal	4
	131-2-6201-37000	Plate Heat Sink (for Q511 ~ Q518)	8

CAPACITORS

C501	CC3-3-1500-KD00C	Ceramic	330pF	50V	±10%	1
C502	CC3-3-1500-KD00C	Ceramic	330pF	50V	±10%	1
C503	CD4-7-5250-0001V	Electrolytic	4.7μF	25V		1
C504	CD4-7-5250-0001V	Electrolytic	4.7μF	25V		1
C505	CC2-2-1500-KE00R	Ceramic	220pF	50V	±10%	1
C506	CC2-2-1500-KE00R	Ceramic	220pF	50V	±10%	1
C507	CC2-2-1500-KE00R	Ceramic	220pF	50V	±10%	1
C508	CC2-2-1500-KE00R	Ceramic	220pF	50V	±10%	1
C509	CD1-0-7100-0001V	Electrolytic	100μF	10V		1
C510	CD1-0-7100-0001V	Electrolytic	100μF	10V		1
C511	CC4-7-0500-JD00R	Ceramic	47pF	50V	±5%	1
C512	CC4-7-0500-JD00R	Ceramic	47pF	50V	±5%	1
C515	4-2239-72050	Ceramic	4pF	500V	±0.5pF	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
C516	4-2239-72050	Ceramic	4pF	500V	±0.5pF	1
C519	4-2239-72020	Ceramic	3pF	500V	±0.5pF	1
C520	4-2239-72020	Ceramic	3pF	500V	±0.5pF	1
C521	4-2239-72050	Ceramic	4pF	500V	±0.5pF	1
C522	4-2239-72050	Ceramic	4pF	500V	±0.5pF	1
C523	4-2239-72120	Ceramic	220pF	500V	±10%	1
C524	4-2239-72120	Ceramic	220pF	500V	±10%	1
C525	4-2239-72120	Ceramic	220pF	500V	±10%	1
C526	4-2239-72120	Ceramic	220pF	500V	±10%	1
C527	CD4-7-6100-0001V	Electrolytic	47μF	10V		1
C528	CD4-7-6100-0001V	Electrolytic	47μF	10V		1
C529	CM1-0-4500-J00TV	Mylar	0.1μF	50V	±5%	1
C530	CM1-0-4500-J00TV	Mylar	0.1μF	50V	±5%	1
C531	CM4-7-3500-K00SV	Mylar	0.047μF	50V	±10%	1
C532	CM4-7-3500-K00SV	Mylar	0.047μF	50V	±10%	1
C533	CD1-0-5101-0001V	Electrolytic	1μF	100V		1
C534	CD1-0-5101-0001V	Electrolytic	1μF	100V		1
C535	CD4-7-6101-0001V	Electrolytic	47μF	100V		1
C536	CD4-7-6101-0001V	Electrolytic	47μF	100V		1
C537	CD4-7-6101-0001V	Electrolytic	47μF	100V		1
C538	CD4-7-6101-0001V	Electrolytic	47μF	100V		1
C539	CD1-0-7101-0001V	Electrolytic	100μF	100V		1
C540	CD4-7-5101-0001V	Electrolytic	4.7μF	100V		1
C541	CB1-0-5101-0000V	None-polar	1μF	100V		1
C551	CC1-2-1500-JD00R	Ceramic	120pF	50V	±5%	1
C552	CC1-2-1500-JD00R	Ceramic	120pF	50V	±5%	1
C553	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C554	CC2-2-1500-KD00C	Ceramic	220pF	50V	±10%	1
C561	CC1-8-1500-KD00C	Ceramic	180pF	50V	±10%	1
C562	CC1-8-1500-KD00C	Ceramic	180pF	50V	±10%	1
	SEMICONDUCTORS					
D505	202-5-2810-44210	Diode, DS 442				1
D506	202-5-2810-44210	Diode, DS 442				1
D507	202-5-2810-44210	Diode, DS 442				1
D508	202-5-2810-44210	Diode, DS 442				1
D509	202-5-2810-44210	Diode, DS 442				1
D510	202-5-2810-44210	Diode, DS 442				1
D511	202-5-3200-02211	Zener Diode, GZA 2.2X				1
D512	202-5-3200-02211	Zener Diode, GZA 2.2X				1
D513	202-5-2810-44210	Diode, DS 442				1
D514	202-5-2810-44210	Diode, DS 442				1
D515	202-5-2810-44210	Diode, DS 442				1
D516	202-5-2810-44210	Diode, DS 442				1
D521	202-5-2810-44210	Diode, DS 442				1
D522	202-5-2810-44210	Diode, DS 442				1
D523	202-5-2810-44210	Diode, DS 442				1
D524	202-5-2810-44210	Diode, DS 442				1
Q501	TMM--2SC1-583-G	Transistor, 2SC 1583				1
Q502	TMM--2SC1-583-G	Transistor, 2SC 1583				1
Q503	4-2039-71181	Transistor, 2SC 2291				1
Q504	4-2039-71181	Transistor, 2SC 2291				1
Q505	4-2039-72541	Transistor, 2SA 995				1
Q506	4-2039-72541	Transistor, 2SA 995				1
Q507	203-5-6922-90690	Transistor, 2SC 2909				1
Q508	203-5-6922-90690	Transistor, 2SC 2909				1
Q509	203-5-7161-20780	Transistor, 2SA 1207				1
Q510	203-5-7161-20780	Transistor, 2SA 1207				1
Q511	203-5-6931-20980	Transistor, 2SA 1209				1
Q512	203-5-6931-20980	Transistor, 2SA 1209				1
Q513	203-5-5632-91185	Transistor, 2SC 2911				1
Q514	203-5-5632-91185	Transistor, 2SC 2911				1
Q515	203-5-5143-11782	Transistor, 2SC 3117				1
Q516	203-5-5143-11782	Transistor, 2SC 3117				1
Q517	203-5-4711-24982	Transistor, 2SA 1249				1
Q518	203-5-4711-24982	Transistor, 2SA 1249				1
Q519	4-2039-72531	Transistor, 2SC 2922				1
Q520	4-2039-72531	Transistor, 2SC 2922				1
Q521	4-2039-72521	Transistor, 2SA 1216				1
Q522	4-2039-72521	Transistor, 2SA 1216				1
Q523	203-5-6922-90690	Transistor, 2SC 2909				1
Q524	203-5-6922-90690	Transistor, 2SC 2909				1
Q525	203-5-7161-20790	Transistor, 2SA 1207				1
Q526	203-5-7161-20790	Transistor, 2SA 1207				1
Q527	4-2039-70951	Transistor, 2SC 2878				1
Q528	4-2039-70951	Transistor, 2SC 2878				1
Q531	203-5-6922-90680	Transistor, 2SC 2909				1
Q532	203-5-7161-20780	Transistor, 2SA 1207				1
Q533	203-5-4711-24980	Transistor, 2SA 1249				1
Q534	203-5-5143-11780	Transistor, 2SC 3117				1
Q535	4-2039-72520	Transistor, 2SA 1216				1
Q536	4-2039-72530	Transistor, 2SC 2922				1
	RESISTORS					
R501	401 024 7004	CARBON 1K JA 1/6W				1
R502	401 024 7004	CARBON 1K JA 1/6W				1
R503	401 024 7707	CARBON 100K JA 1/6W				1
R504	401 024 7707	CARBON 100K JA 1/6W				1
R505	401 027 0309	CARBON 47K JA 1/6W				1
R506	401 027 0309	CARBON 47K JA 1/6W				1
R507	401 022 4104	CARBON 68K JA 1/4W				1
R508	401 022 4104	CARBON 68K JA 1/4W				1
R509	401 013 6407	CARBON 12K JA 1/4W				1
R510	401 013 6407	CARBON 12K JA 1/4W				1
R511	401 016 3809	CARBON 2.2K JA 1/4W				1
R512	401 016 3809	CARBON 2.2K JA 1/4W				1
R513	401 021 0701	CARBON 56 JA 1/4W				1
R514	401 021 0701	CARBON 56 JA 1/4W				1
R515	401 021 0701	CARBON 56 JA 1/4W				1
R516	401 021 0701	CARBON 56 JA 1/4W				1
R517	401 023 1706	CARBON 820 JA 1/4W				1
R518	401 023 1706	CARBON 820 JA 1/4W				1
R519	401 018 2800	CARBON 330 JA 1/4W				1
R520	401 018 2800	CARBON 330 JA 1/4W				1
R521	401 021 4105	CARBON 56K JA 1/4W				1
R522	401 021 4105	CARBON 56K JA 1/4W				1
R523	401 012 5708	CARBON 1K JA 1/4W				1
R524	401 012 5708	CARBON 1K JA 1/4W				1
R525	402 015 9700	FUSIBLE RES 82 J- 1/4W				1
R526	402 015 9700	FUSIBLE RES 82 J- 1/4W				1
R527	401 018 2800	CARBON 330 JA 1/4W				1
R528	401 018 2800	CARBON 330 JA 1/4W				1
R531	402 015 9700	FUSIBLE RES 82 J- 1/4W				1
R532	402 015 9700	FUSIBLE RES 82 J- 1/4W				1
R535	402 015 8208	FUSIBLE RES 150 J- 1/4W				1
R536	402 015 8208	FUSIBLE RES 150 J- 1/4W				1
R537	402 015 8208	FUSIBLE RES 150 J- 1/4W				1
R538	402 015 8208	FUSIBLE RES 150 J- 1/4W				1
R539	401 067 5203	OXIDE-MT 330 JB 2W				1
R540	401 067 5203	OXIDE-MT 330 JB 2W				1
R541	402 015 9304	FUSIBLE RES 5.6 J- 1/4W				1
R542	402 015 9304	FUSIBLE RES 5.6 J- 1/4W				1
R543	402 015 9304	FUSIBLE RES 5.6 J- 1/4W				1
R544	402 015 9304	FUSIBLE RES 5.6 J- 1/4W				1
R545	4-2219-70371	Cement 0.33-2 5W				1
R546	4-2219-70371	Cement 0.33-2 5W				1
R547	401 018 4903	CARBON 33K JA 1/4W				1
R548	401 018 4903	CARBON 33K JA 1/4W				1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R549	401 020 6308	CARBON 5.6 JA 1/4W	1
R550	401 020 6308	CARBON 5.6 JA 1/4W	1
R551	401 064 6203	OXIDE-MT 10 JB 2W	1
R552	401 064 6203	OXIDE-MT 10 JB 2W	1
R553	402 015 9601	FUSIBLE RES 680 J- 1/4W	1
R554	402 015 9601	FUSIBLE RES 680 J- 1/4W	1
R555	401 023 7500	CARBON 9.1K JA 1/4W	1
R556	401 023 7500	CARBON 9.1K JA 1/4W	1
R557	402 015 9601	FUSIBLE RES 680 J- 1/4W	1
R558	402 015 9601	FUSIBLE RES 680 J- 1/4W	1
R559	401 023 7500	CARBON 9.1K JA 1/4W	1
R560	401 023 7500	CARBON 9.1K JA 1/4W	1
R561	401 020 2904	CARBON 47K JA 1/4W	1
R562	401 020 2904	CARBON 47K JA 1/4W	1
R563	401 020 2904	CARBON 47K JA 1/4W	1
R564	401 020 2904	CARBON 47K JA 1/4W	1
R565	401 012 7009	CARBON 10K JA 1/4W	1
R566	401 024 7400	CARBON 10K JA 1/6W	1
R567	401 027 5502	CARBON 6.8K JA 1/6W	1
R568	401 027 5502	CARBON 6.8K JA 1/6W	1
R569	402 015 9205	FUSIBLE RES 47 J- 1/4W	1
R570	402 015 9205	FUSIBLE RES 47 J- 1/4W	1
R571	402 015 9205	FUSIBLE RES 47 J- 1/4W	1
R572	402 015 9205	FUSIBLE RES 47 J- 1/4W	1
R573	401 027 3003	CARBON 56K JA 1/6W	1
R574	401 027 3003	CARBON 56K JA 1/6W	1
R575	401 027 0309	CARBON 47K JA 1/6W	1
R581	401 012 7009	CARBON 10K JA 1/4W	1
R582	401 012 7009	CARBON 10K JA 1/4W	1
R585	401 027 2600	CARBON 5.6K JA 1/6W	1
R586	401 027 2600	CARBON 5.6K JA 1/6W	1
R587	401 012 5708	CARBON 1K JA 1/4W	1
R588	401 012 5708	CARBON 1K JA 1/4W	1
R589	401 068 0108	OXIDE-MT 3.9K JB 2W	1
R590	401 068 0108	OXIDE-MT 3.9K JB 2W	1

POWER SUPPLY P.C.B. ASSY

Ref. No.	Part No.	Description	Q'ty
57	141-0-1939-14924	Power Supply P.C.B. Assy	1
	4-2262-26810	Power Supply P.C.B.	1
	⚠ 4-2349-20580	Fuse 3.15A	2
	⚠ 4-2349-21570	Fuse T6.3A	2
RE601	4-2322-00210	Relay	1
RE602	4-2329-70330	Relay	1
J405P	4-2369-73160	Connector 6P	1
J501P	4-2369-76240	Plug 8P	1
J502P	4-2369-73130	Connector 3P	1
J601P	4-2439-72199	Wire 3 Parallel	1
J602P	4-2439-72198	Wire 2 Parallel	1
J804P	4-2369-73410	Connector 7P	1
X301	4-2369-73140	Connector 4P	1
	4-2352-00200	Fuse Holder	8
	111-2-6220-11100	Wire Wrap Terminal	12
	131-2-6114-00200	Cover Safety	1
	131-2-6201-30100	Plate Heat Sink (for Q601, Q602, Q603)	3
	131-2-7103-52607	Label Fuse T3.15Ax2	1
	131-2-7103-52608	Label Fuse T6.3Ax2	1

CAPACITORS

Ref. No.	Part No.	Description				Q'ty
C601	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C602	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C603	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C604	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C605	4-2239-72240	Capacitor	10000μF	85V		1
C606	4-2239-72240	Capacitor	10000μF	85V		1
C607	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C608	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C609	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C610	CC1-0-3501-YEY0C	Ceramic	0.01μF	500V	+100,-0%	1
C611	4-2239-72190	Electrolytic	4700μF	40v		1
C612	4-2239-72190	Electrolytic	4700μF	40v		1
C613	CD3-3-6250-0001V	Electrolytic	33μF	25V		1
C614	CD3-3-6250-0001V	Electrolytic	33μF	25V		1
C615	CD1-0-6250-0001V	Electrolytic	10μF	25V		1
C616	CD1-0-6250-0001V	Electrolytic	10μF	25V		1
C617	CD1-0-6250-0001V	Electrolytic	10μF	25V		1
C618	CD1-0-6250-0001V	Electrolytic	10μF	25V		1
C619	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C621	CD1-0-7160-0001V	Electrolytic	100μF	16V		1
C622	CD1-0-5500-0001V	Electrolytic	1μF	50V		1
C623	CB4-7-6160-0000V	None-polar	47μF	16V		1
C624	CD4-7-4500-0001V	Electrolytic	0.47μF	50V		1
C625	CD2-2-6100-0001V	Electrolytic	22μF	10V		1
C626	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C627	CD1-0-6250-0001V	Electrolytic	10μF	25V		1
C628	CI1-0-3250-MF00R	Boundary	0.01μF	25V	±20%	1
C631	CI1-0-3250-MF00R	Boundary	0.01μF	25V	±20%	1
C632	CD4-7-7160-0001V	Electrolytic	470μF	16V		1
C633	CD4-7-663A-0001V	Electrolytic	47μF	6.3V		1
C634	CD1-0-6250-0001V	Electrolytic	10μF	25V		1
C636	CD4-7-6250-0006V	Electrolytic	47μF	25V		1
C637	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C641	4-2239-70970	Capacitor	0.01μF	400V		1

SEMICONDUCTORS

Ref. No.	Part No.	Description	Q'ty
D601	212-5-5990-03020	Stack Diode, 30DC 1S	1
D602	212-5-5990-03010	Stack Diode, 30DC 1RS	1
D603	4-2029-73840	Diode, 30D 2	1
D604	4-2029-73840	Diode, 30D 2	1
D605	4-2029-73840	Diode, 30D 2	1
D606	4-2029-73840	Diode, 30D 2	1
D607	202-5-0220-01010	Diode, DSF 10 C	1
D608	202-5-3210-16011	Zener Diode, GZA 16X	1
D609	202-5-3210-16011	Zener Diode, GZA 16X	1
D610	202-5-3210-05612	Zener Diode, GZA 5.6Y	1
D611	202-5-0220-01010	Diode, DSF 10 C	1
D612	202-5-0220-01010	Diode, DSF 10 C	1
D614	202-5-0220-01010	Diode, DSF 10 C	1
D615	202-5-0220-01010	Diode, DSF 10 C	1
D618	202-5-0220-01010	Diode, DSF 10 C	1
D619	202-5-3210-05612	Zener Diode, GZA 5.6Y	1
D620	202-5-0220-01010	Diode, DSF 10 C	1
D621	202-5-3210-05612	Zener Diode, GZA 5.6Y	1
D622	202-5-0220-01010	Diode, DSF 10 C	1
D623	202-5-0220-01010	Diode, DSF 10 C	1
D631	4-2029-73840	Diode, 30D 2	1
D632	4-2029-73840	Diode, 30D 2	1
IC601	4-2069-73810	IC, TA 7317 P	1
Q601	203-5-8570-33050	Transistor, 2SD 330	1
Q602	203-5-8530-51450	Transistor, 2SB 514	1
Q603	203-5-8570-33050	Transistor, 2SD 330	1
Q604	203-5-7230-60860	Transistor, 2SA 608	1
Q606	203-5-5000-53660	Transistor, 2SC 536	1
Q607	203-5-7230-60860	Transistor, 2SA 608	1
Q608	203-5-5000-53660	Transistor, 2SC 536	1

RESISTORS

Ref. No.	Part No.	Description	Q'ty
R601	401 073 0407	OXIDE-MT 56 JB 3W	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R602	401 073 6508	OXIDE-MT 82 JB 3W	1
R603	401 012 5708	CARBON 1K JA 1/4W	1
R604	401 012 5708	CARBON 1K JA 1/4W	1
R605	401 020 0801	CARBON 470 JA 1/4W	1
R606	401 020 0801	CARBON 470 JA 1/4W	1
R608	401 073 6508	OXIDE-MT 82 JB 3W	1
R609	401 012 5708	CARBON 1K JA 1/4W	1
R610	401 012 5708	CARBON 1K JA 1/4W	1
R612	401 012 8105	CARBON 100K JA 1/4W	1
R613	401 014 4105	CARBON 1.5K JA 1/4W	1
R615	401 012 4503	CARBON 100 JA 1/4W	1
R616	401 020 2904	CARBON 47K JA 1/4W	1
R617	401 015 3800	CARBON 18K JA 1/4W	1
R618	401 020 2904	CARBON 47K JA 1/4W	1
R619	401 020 2904	CARBON 47K JA 1/4W	1
R621	401 020 2904	CARBON 47K JA 1/4W	1
R622	401 026 7002	CARBON 3.9K JA 1/6W	1
R623	401 012 8105	CARBON 100K JA 1/4W	1
R624	401 014 5201	CARBON 15K JA 1/4W	1
R625	401 014 5201	CARBON 15K JA 1/4W	1
R626	401 019 1901	CARBON 3.9K JA 1/4W	1
R628	401 019 1901	CARBON 3.9K JA 1/4W	1
R629	401 021 4105	CARBON 56K JA 1/4W	1
R630	401 018 4903	CARBON 33K JA 1/4W	1
R631	401 015 4708	CARBON 180K JA 1/4W	1
R632	401 055 1804	OXIDE-MT 150 JB 1/2W	1
R634	401 018 2800	CARBON 330 JA 1/4W	1
R635	401 014 6109	CARBON 150K JA 1/4W	1
R636	401 014 6109	CARBON 150K JA 1/4W	1
R638	402 015 8000	FUSIBLE RES 120 J- 1/4W	1

SPEAKER SWITCH P.C.B. ASSY

58	141-0-1939-14932	Speaker Switch P.C.B. Assy	1
	4-2262-26820	Speaker Switch P.C.B.	1
SW701	⚠ 4-2312-05710	Switch Push Power (Power)	1
SW702	4-2319-78890	Push Switch 1Key (Speaker A)	1
SW703	4-2319-78890	Push Switch 1Key (Speaker B)	1
J701P	4-2439-72195	Wire 6 Parallel	1
	4-2352-00970	Headphone Jack 3P (Headphones)	1
	111-2-6220-11100	Wire Wrap Terminal	2
	131-2-6114-00200	Cover Safety	1

CAPACITOR

C701	⚠ 4-2239-71040	Capacitor	1000pF	400V	1

RESISTORS

R701	401 069 2705	OXIDE-MT 680 JB 2W	1
R702	401 069 2705	OXIDE-MT 680 JB 2W	1
R703	401 055 0005	OXIDE-MT 120 JB 1/2W	1
R704	401 055 0005	OXIDE-MT 120 JB 1/2W	1

SPEAKER TERMINAL P.C.B. ASSY

59	141-0-1939-14941	Speaker Terminal P.C.B. Assy	1
	4-2262-26830	Speaker Terminal P.C.B.	1
	4-2372-00830	EC Terminal 1P	2
	4-2379-71080	8P Push Terminal (Speaker)	1
	111-2-6220-11100	Wire Wrap Terminal	3

CAPACITORS

C711	CC1-0-2501-KE00C	Ceramic	0.001μF	500V	±10%	1
C712	CC1-0-2501-KE00C	Ceramic	0.001μF	500V	±10%	1
C713	CC1-0-2501-KE00C	Ceramic	0.001μF	500V	±10%	1
C714	CC1-0-2501-KE00C	Ceramic	0.001μF	500V	±10%	1

BIAS P.C.B. ASSY (LEFT)

60	141-0-1939-14910	Bias P.C.B. Assy (Left)	1
	4-2262-26800	Bias P.C.B.	1

SEMICONDUCTORS

D551	202-5-2810-44210	Diode, DS 442	1
Q551	4-2039-72100	Transistor, 2SD 947	1

BIAS P.C.B. ASSY (RIGHT)

61	141-0-1939-14911	Bias P.C.B. Assy (Right)	1
	4-2262-26801	Bias P.C.B.	1

SEMICONDUCTORS

D552	202-5-2810-44210	Diode, DS 442	1
Q552	4-2039-72100	Transistor, 2SD 947	1

FRONT CONTROL P.C.B. ASSY

62	141-0-1939-15010	Front Control P.C.B. Assy	1
	4-2262-26910	Front Control P.C.B.	1
	4-2149-70020	Digitron (Power Level Meters)	1
K401	4-2319-78470	Tact Switch (Power Standby)	1
K402	4-2319-78470	Tact Switch (Muting)	1
K403	4-2312-05802	Keyboard Switch (Volume Up)	1
K404	4-2312-05802	Keyboard Switch (Volume Down)	1
K405	4-2319-78470	Tact Switch (Loudness)	1
K406	4-2319-78470	Tact Switch (Synchro Rec)	1
LC401	4-2599-71340	RF Coil 38kHz	1
J404P	4-2359-79284	Connector 3P Assy	1
J405P	4-2359-78969	Connector 6P Assy	1
	131-2-4208-48500	Spacer A	1
	131-2-4208-48700	Spacer B	1
	131-2-4208-48800	Spacer C	4
	131-2-4208-48900	Spacer D	1
	131-2-5205-32801	Cushion	1
	131-2-6103-24700	Cover Shield LED	1

CAPACITORS

C401	CD1-0-6160-0002V	Electrolytic	10μF	16V		1
C402	CD1-0-6160-0002V	Electrolytic	10μF	16V		1
C403	CD2-2-663A-0002V	Electrolytic	22μF	6.3V		1
C404	CD2-2-663A-0002V	Electrolytic	22μF	6.3V		1
C405	CM3-3-3500-K00SV	Mylar	0.033μF	50V	±10%	1
C406	CD4-7-5250-0001V	Electrolytic	4.7μF	25V		1
C407	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C408	CD1-0-6160-0001V	Electrolytic	10μF	16V		1
C409	CD1-0-763A-0002V	Electrolytic	100μF	6.3V		1
C410	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V	+80,-20%	1
C411	CC1-0-1500-KD00C	Ceramic	100pF	50V	±10%	1

SEMICONDUCTORS

D401	202-5-3160-00110	Diode, GMA 01	1
D402	202-5-3160-00110	Diode, GMA 01	1
D403	4-2029-74470	Diode, SPI 06 FC	1
D404	4-2029-74200	Led, SLP 673 B (Volume)	1
D405	4-2029-74200	Led, SLP 673 B (Volume)	1
D406	4-2029-74200	Led, SLP 673 B (Volume)	1
D407	4-2029-74200	Led, SLP 673 B (Volume)	1
D408	4-2029-74200	Led, SLP 673 B (Volume)	1
D409	4-2029-74200	Led, SLP 673 B (Volume)	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
D410	4-2029-74200	Led, SLP 673 B (Volume)	1
D411	4-2029-74200	Led, SLP 673 B (Volume)	1
D412	4-2029-74200	Led, SLP 673 B (Volume)	1
D413	4-2029-74200	Led, SLP 673 B (Volume)	1
D414	4-2029-73770	Led, SEL 2213 C (Tape-1)	1
D415	4-2029-73770	Led, SEL 2213 C (Muting)	1
D416	4-2029-73770	Led, SEL 2213 C (Loudness)	1
D417	4-2029-73770	Led, SEL 2213 C (Synchro Rec)	1
D418	4-2029-74480	Led, SEL 2413 E (Phono)	1
D419	4-2029-74480	Led, SEL 2413 E (Tuner)	1
D420	4-2029-74480	Led, SEL 2413 E (CD)	1
D421	4-2029-74480	Led, SEL 2413 E (TV)	1
D422	4-2029-74480	Led, SEL 2413 E (VCR)	1
D423	4-2029-74480	Led, SEL 2413 E (Aux)	1
D424	4-2029-73770	Led, SEL 2213 C (Power Standby)	1
IC401	4-2069-73700	IC, BA 6146	1
IC402	4-2069-73700	IC, BA 6146	1
IC403	4-2069-74780	IC, μPC 1473 HA	1
Q401	203-5-7230-60860	Transistor, 2SA 608	1

RESISTORS

Ref. No.	Part No.	Description	Q'ty
R401	401 024 7400	CARBON 10K JA 1/6W	1
R402	401 024 7400	CARBON 10K JA 1/6W	1
R403	401 024 7400	CARBON 10K JA 1/6W	1
R404	401 024 7400	CARBON 10K JA 1/6W	1
R405	401 024 7004	CARBON 1K JA 1/6W	1
R406	401 024 7004	CARBON 1K JA 1/6W	1
R407	401 024 7400	CARBON 10K JA 1/6W	1
R408	401 024 7707	CARBON 100K JA 1/6W	1
R409	401 027 0309	CARBON 47K JA 1/6W	1
R410	401 025 7102	CARBON 22 JA 1/6W	1
R411	401 024 7004	CARBON 1K JA 1/6W	1
R412	401 026 9303	CARBON 47 JA 1/6W	1
R413	401 026 9600	CARBON 470 JA 1/6W	1

MICOM P.C.B. ASSY

Ref. No.	Part No.	Description	Q'ty
63	141-0-1939-15022	Micom P.C.B. Assy	1
	4-2262-26920	Micom P.C.B.	1
	4-2259-70980	Crystal 4.4MHz	1
L802	4-2539-72020	Choke Coil (680μH)	1
J803P	4-2359-77395	Connector 4P Assy	1
J804P	4-2359-77396	Connector 7P Assy	1
J805P	4-2359-77802	Connector 5P Assy	1
X801	4-2369-73410	Connector 7P	1
	141-2-4729-07100	Wire Band	1

CAPACITORS

Ref. No.	Part No.	Description				Q'ty
C801	CC4-7-1500-KE01R	Ceramic	470pF	50V	±10%	1
C802	CC4-7-1500-KE01R	Ceramic	470pF	50V	±10%	1
C803	CC4-7-1500-KE01R	Ceramic	470pF	50V	±10%	1
C804	CC4-7-1500-KE01R	Ceramic	470pF	50V	±10%	1
C805	CC4-7-1500-KE01R	Ceramic	470pF	50V	±10%	1
C806	CD1-0-763A-0006V	Electrolytic	100μF	6.3V		1
C807	CD4-7-8160-0001V	Electrolytic	4700μF	16V		1
C808	CD1-0-763A-0006V	Electrolytic	100μF	6.3V		1
C809	CC4-7-3500-ZG00C	Ceramic	0.047μF	50V	+80,-20%	1
C810	CC3-3-0500-KD00C	Ceramic	33pF	50V	±10%	1
C811	CC3-3-0500-KD00C	Ceramic	33pF	50V	±10%	1
C812	CM1-0-3500-K00SV	Mylar	0.01μF	50V	±10%	1
C813	CD1-0-6160-0001V	Electrolytic	10μF	16V		1

SEMICONDUCTORS

Ref. No.	Part No.	Description	Q'ty
D801	202-5-3160-00110	Diode, GMA 01	1
D802	202-5-3160-00110	Diode, GMA 01	1
D803	202-5-3160-00110	Diode, GMA 01	1
D804	202-5-3160-00110	Diode, GMA 01	1
D805	202-5-3160-00110	Diode, GMA 01	1
D806	202-5-3160-00110	Diode, GMA 01	1
D807	202-5-3160-00110	Diode, GMA 01	1
D808	205-5-9040-44210	Diode, DS 442	1
D809	202-5-3160-00110	Diode, GMA 01	1
D810	202-5-3160-00110	Diode, GMA 01	1
D811	4-2029-75010	Schottoky Diode, MA700	1
IC801	4-2069-75220	IC, TMP 47C400N 1	1
Q801	203-5-4930-80860	Transistor, 2SB 808	1
Q802	203-5-4930-80860	Transistor, 2SB 808	1
Q803	203-5-4930-80860	Transistor, 2SB 808	1
Q804	203-5-4930-80860	Transistor, 2SB 808	1
Q805	203-5-4930-80860	Transistor, 2SB 808	1
Q806	203-5-4930-80860	Transistor, 2SB 808	1
Q807	203-5-4930-80860	Transistor, 2SB 808	1
Q808	203-5-4930-80860	Transistor, 2SB 808	1
Q809	203-5-4930-80860	Transistor, 2SB 808	1
Q810	203-5-4930-80860	Transistor, 2SB 808	1
Q811	203-5-7230-60860	Transistor, 2SA 608	1
Q812	203-5-5000-53660	Transistor, 2SC 536	1
Q813	203-5-5000-53660	Transistor, 2SC 536	1
Q814	203-5-5000-53660	Transistor, 2SC 536	1
Q815	203-5-5000-53660	Transistor, 2SC 536	1
Q816	203-5-5000-53660	Transistor, 2SC 536	1
Q817	203-5-5000-53660	Transistor, 2SC 536	1
Q818	203-5-5000-53660	Transistor, 2SC 536	1

RESISTORS

Ref. No.	Part No.	Description	Q'ty
R801	401 024 7400	CARBON 10K JA 1/6W	1
R802	401 024 7400	CARBON 10K JA 1/6W	1
R803	401 024 7400	CARBON 10K JA 1/6W	1
R804	401 024 7400	CARBON 10K JA 1/6W	1
R805	401 024 7400	CARBON 10K JA 1/6W	1
R806	401 024 7400	CARBON 10K JA 1/6W	1
R807	401 024 7400	CARBON 10K JA 1/6W	1
R808	401 012 7009	CARBON 10K JA 1/4W	1
R809	401 012 7009	CARBON 10K JA 1/4W	1
R810	401 012 7009	CARBON 10K JA 1/4W	1
R811	401 024 7707	CARBON 100K JA 1/6W	1
R812	401 024 7707	CARBON 100K JA 1/6W	1
R813	401 024 7707	CARBON 100K JA 1/6W	1
R814	401 024 7707	CARBON 100K JA 1/6W	1
R815	401 024 7707	CARBON 100K JA 1/6W	1
R816	401 024 7707	CARBON 100K JA 1/6W	1
R817	401 024 7707	CARBON 100K JA 1/6W	1
R818	401 024 7707	CARBON 100K JA 1/6W	1
R819	401 012 7009	CARBON 10K JA 1/4W	1
R820	401 012 7009	CARBON 10K JA 1/4W	1
R821	401 012 7009	CARBON 10K JA 1/4W	1
R822	401 024 7400	CARBON 10K JA 1/6W	1
R823	401 024 7707	CARBON 100K JA 1/6W	1
R824	401 024 7707	CARBON 100K JA 1/6W	1
R825	401 024 7707	CARBON 100K JA 1/6W	1
R826	401 024 7707	CARBON 100K JA 1/6W	1
R827	401 012 7009	CARBON 10K JA 1/4W	1
R828	401 024 7400	CARBON 10K JA 1/6W	1
R829	401 024 7400	CARBON 10K JA 1/6W	1
R830	401 024 7400	CARBON 10K JA 1/6W	1
R831	401 024 7400	CARBON 10K JA 1/6W	1
R832	401 024 7400	CARBON 10K JA 1/6W	1
R833	401 024 6700	CARBON 100 JA 1/6W	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R834	401 024 6700	CARBON 100 JA 1/6W	1
R835	401 024 6700	CARBON 100 JA 1/6W	1
R836	401 024 6700	CARBON 100 JA 1/6W	1
R837	401 024 7004	CARBON 1K JA 1/6W	1
R838	401 024 7004	CARBON 1K JA 1/6W	1
R839	401 024 7004	CARBON 1K JA 1/6W	1
R840	401 024 7004	CARBON 1K JA 1/6W	1
R841	401 024 7004	CARBON 1K JA 1/6W	1
R842	401 012 5708	CARBON 1K JA 1/4W	1
R843	401 013 5301	CARBON 1.2K JA 1/4W	1
R844	401 013 5301	CARBON 1.2K JA 1/4W	1
R845	401 013 5301	CARBON 1.2K JA 1/4W	1
R846	401 013 5301	CARBON 1.2K JA 1/4W	1
R847	401 027 0309	CARBON 47K JA 1/6W	1
R848	401 012 8105	CARBON 100K JA 1/4W	1
R849	401 024 7400	CARBON 10K JA 1/6W	1
R850	401 024 7707	CARBON 100K JA 1/6W	1
R851	401 026 9600	CARBON 470 JA 1/6W	1
R852	401 026 4308	CARBON 3.3K JA 1/6W	1
R853	401 025 7805	CARBON 2.2K JA 1/6W	1
R854	401 026 1000	CARBON 2.7K JA 1/6W	1
R855	401 024 7400	CARBON 10K JA 1/6W	1
R856	401 024 7400	CARBON 10K JA 1/6W	1
R857	401 063 1100	OXIDE-MT 680 JB 1W	1
R858	401 063 1100	OXIDE-MT 680 JB 1W	1
R859	401 083 8509	OXIDE-MT 1.2K JB 2W	1
R860	401 083 8509	OXIDE-MT 1.2K JB 2W	1
R861	401 083 8509	OXIDE-MT 1.2K JB 2W	1
R862	401 083 8509	OXIDE-MT 1.2K JB 2W	1
R863	401 020 2003	CARBON 4.7K JA 1/4W	1
R864	401 020 2003	CARBON 4.7K JA 1/4W	1
R865	401 020 2003	CARBON 4.7K JA 1/4W	1
R866	401 024 6700	CARBON 100 JA 1/6W	1
R867	401 012 4503	CARBON 100 JA 1/4W	1
R868	401 012 4503	CARBON 100 JA 1/4W	1
R869	401 020 2904	CARBON 47K JA 1/4W	1
R870	401 025 8208	CARBON 22K JA 1/6W	1
R871	401 024 7707	CARBON 100K JA 1/6W	1
R872	401 024 9701	CARBON 12K JA 1/6W	1
R873	401 027 0507	CARBON 470K JA 1/6W	1
R874	401 024 7400	CARBON 10K JA 1/6W	1
R875	401 024 7400	CARBON 10K JA 1/6W	1
	FUNCTION P.C.B. ASSY		
64	141-0-1939-15030	Function Switch P.C.B. Assy	1
	4-2262-26930	Function Switch P.C.B.	1
K801	4-2312-05802	Keyboard Switch (Phono)	1
K802	4-2312-05802	Keyboard Switch (Tuner)	1
K803	4-2312-05802	Keyboard Switch (CD)	1
K804	4-2312-05802	Keyboard Switch (TV)	1
K805	4-2312-05802	Keyboard Switch (VCR)	1
K806	4-2312-05802	Keyboard Switch (Aux)	1
K807	4-2312-05802	Keyboard Switch (Tape-1)	1
X801	4-2359-79280	Connector 7P Assy	1
	REMOTE CONTROL P.C.B. ASSY		
65	141-0-1939-15040	Remote Control P.C.B. Assy	1
	4-2262-26940	Remote Control P.C.B.	1
	4-2359-79160	Mini DIN Socket 4P	1
	4-2369-75580	Plug 5P	4
	131-2-2306-10600	Metal Mount P.C.B.	1

Ref. No.	Part No.	Description	Q'ty
	SEMICONDUCTORS		
D820	202-5-3160-00110	Diode, GMA 01	1
D822	202-5-3160-00110	Diode, GMA 01	1
D823	202-5-3160-00110	Diode, GMA 01	1
	SUB CONTROL SWITCH P.C.B. ASSY		
66	141-0-1939-15021	Sub Control Switch P.C.B. Assy	1
	4-2262-26921	Sub Control Switch P.C.B.	1
	4-2369-73783	Pin 1P	2
	SEMICONDUCTOR		
IC802	206-5-8144-06610	LC 4066BH	1
	FUSE P.C.B. ASSY		
67	141-0-1939-14923	Fuse P.C.B. Assy	1
	4-2262-26900	Support P.C.B.	1
	⚠ 4-2349-20570	Fuse T2.5A	1
	4-2352-00200	Fuse Holder	2
	111-2-6220-11100	Wire Wrap Terminal	2

NOTES:

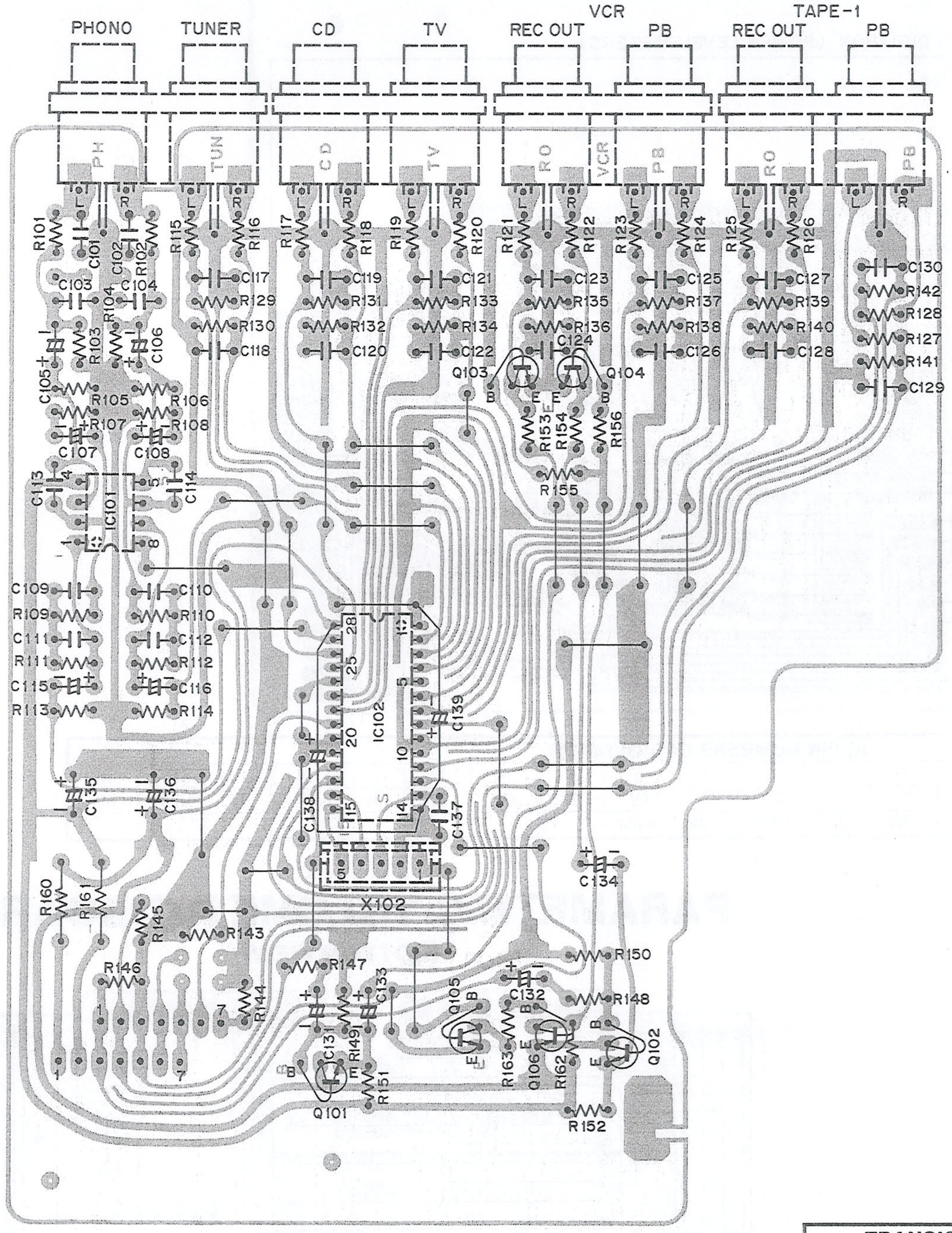
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

INPUT PRINTED CIRCUIT BOARD

(BOTTOM VIEW)

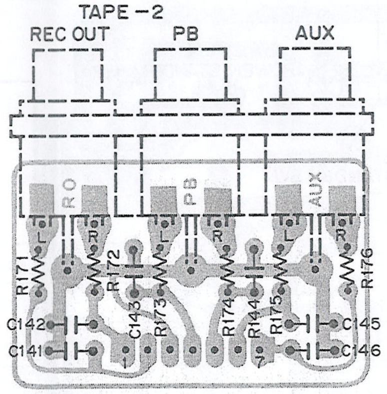

PHONO
TUNER
CD
TV
VCR
REC OUT
PB
TAPE-1
REC OUT
PB
PH
TUN
CD
TV
RO
VCR
PB
RO
PB
IC101
IC102
X102
Q101
Q102
Q103
Q104
Q105
Q106
R101
R102
R103
R104
R105
R106
R107
R108
R109
R110
R111
R112
R113
R114
C101
C102
C103
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
C114
C115
C116
C117
C118
C119
C120
C121
C122
C123
C124
C125
C126
C127
C128
C129
C130
C131
C132
C133
C134
C135
C136
C137
C138
C139
R143
R144
R145
R146
R147
R148
R149
R150
R151
R152
R153
R154
R155
R156
R160
R161
R162
R163

TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q101,102	2SC 1571	−2.3V	13.4V	−3.0V
Q103	2SC 2878	−13.3V	0V	0V
Q104	2SC 2878	−13.3V	0V	0V
Q105	2SC 536	0V	12.7V	0V
Q106	2SA 608	18.7V	−13.4V	13.4V

IC PIN NUMBERS DC VOLTAGES									
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8
IC101	M 5220 P	0V	0V	0V	−13.4V	0V	0V	0V	13.3V

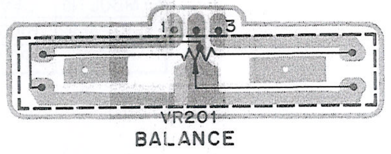
PIN JACK P.C.BOARD

(BOTTOM VIEW)


TAPE−2
REC OUT
PB
AUX
RO
PB
AUX
R171
R172
R173
R174
R175
R176
C141
C142
C143
C144
C145
C146

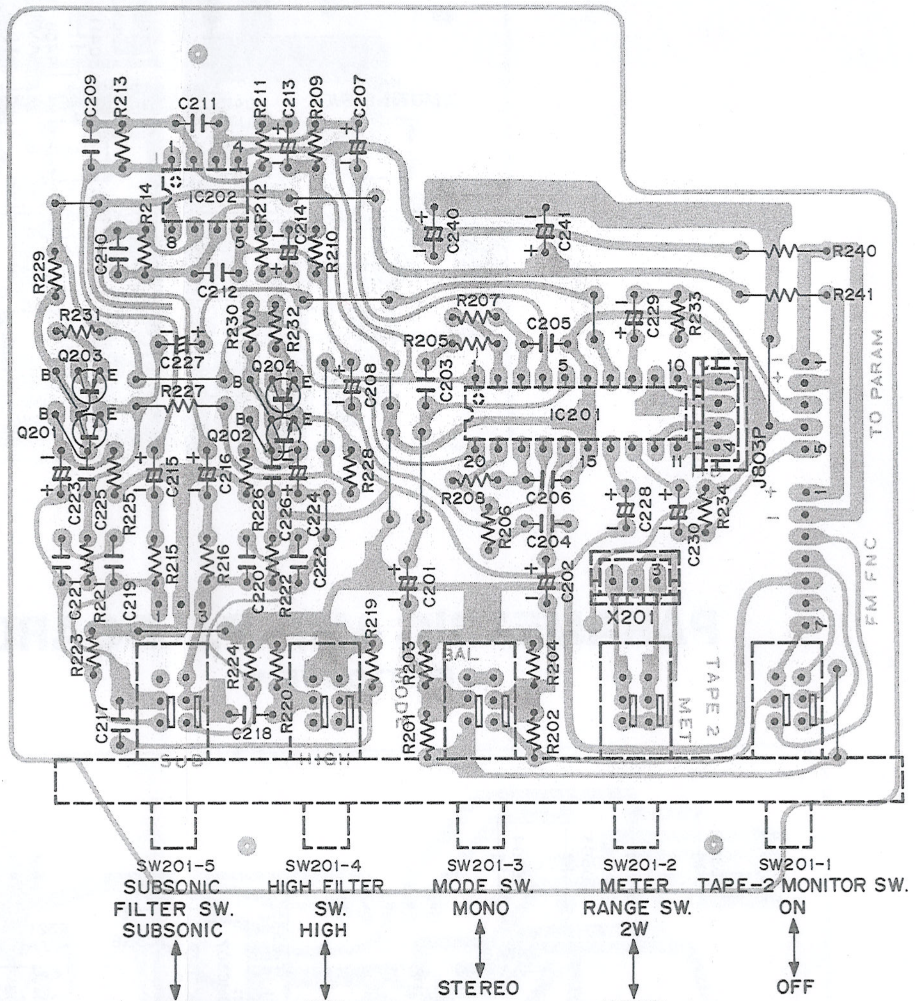
BALANCE P.C.BOARD

(BOTTOM VIEW)


1
2
3
VR201
BALANCE

FILTER AMP. P.C.BOARD

(BOTTOM VIEW)

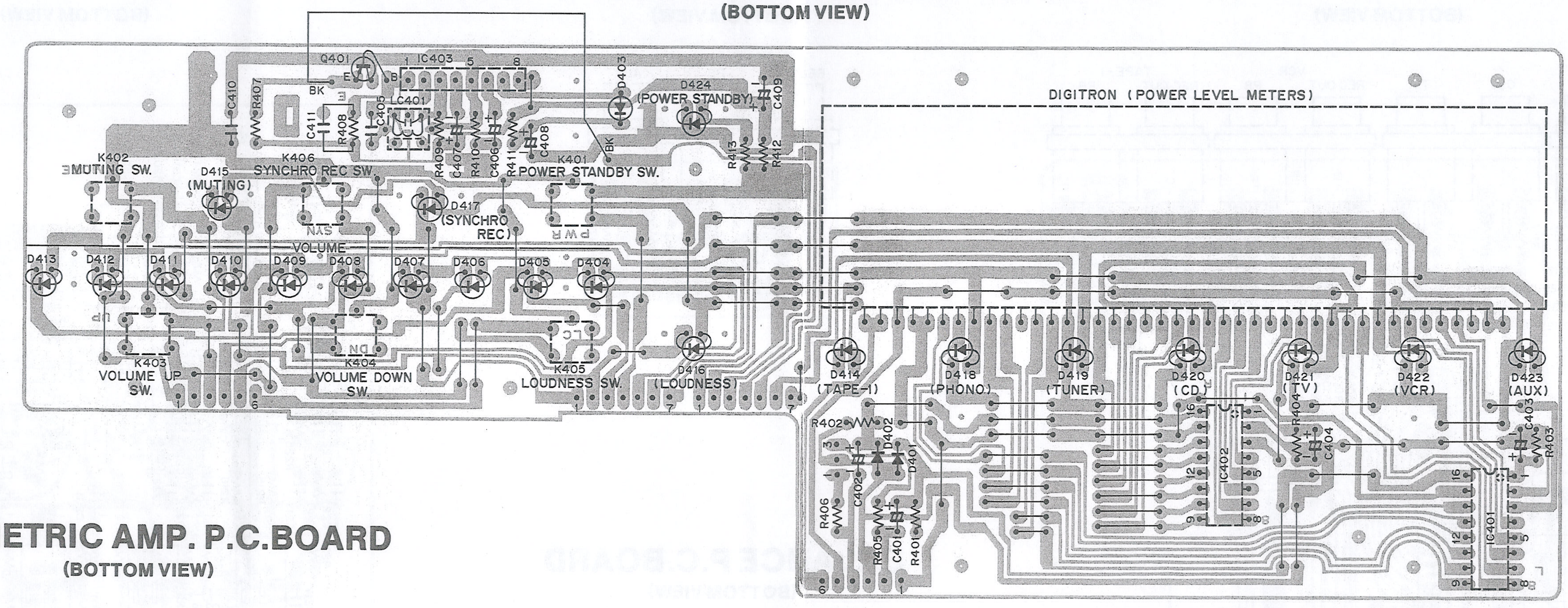

IC201
IC202
X201
Q201
Q202
Q203
Q204
TO PARAM
FM FNC
TAPE 2
MET
BAL
SW201-5
SUBSONIC
FILTER SW.
SUBSONIC
OFF
SW201-4
HIGH FILTER
SW.
HIGH
OFF
SW201-3
MODE SW.
MONO
STEREO
SW201-2
METER
RANGE SW.
2W
200W
SW201-1
TAPE-2 MONITOR SW.
ON
OFF
R201
R202
R203
R204
R205
R206
R207
R208
R209
R210
R211
R212
R213
R214
R215
R216
R217
R218
R219
R220
R221
R222
R223
R224
R225
R226
R227
R228
R229
R230
R231
R232
R233
R234
R240
R241
C201
C202
C203
C204
C205
C206
C207
C208
C209
C210
C211
C212
C213
C214
C215
C216
C217
C218
C219
C220
C221
C222
C223
C224
C225
C226
C227
C228
C229
C230
C240
C241

TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q201,202	2SC 1571	0V	11.1V	−0.6V
Q203,204	2SA 608	11.1V	−0.6V	11.7V

IC PIN NUMBERS DC VOLTAGES									
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8
IC202	LA 6458 D	0V	0V	0V	−12.5V	0V	0V	0V	12.4V

FRONT CONTROL PRINTED CIRCUIT BOARD

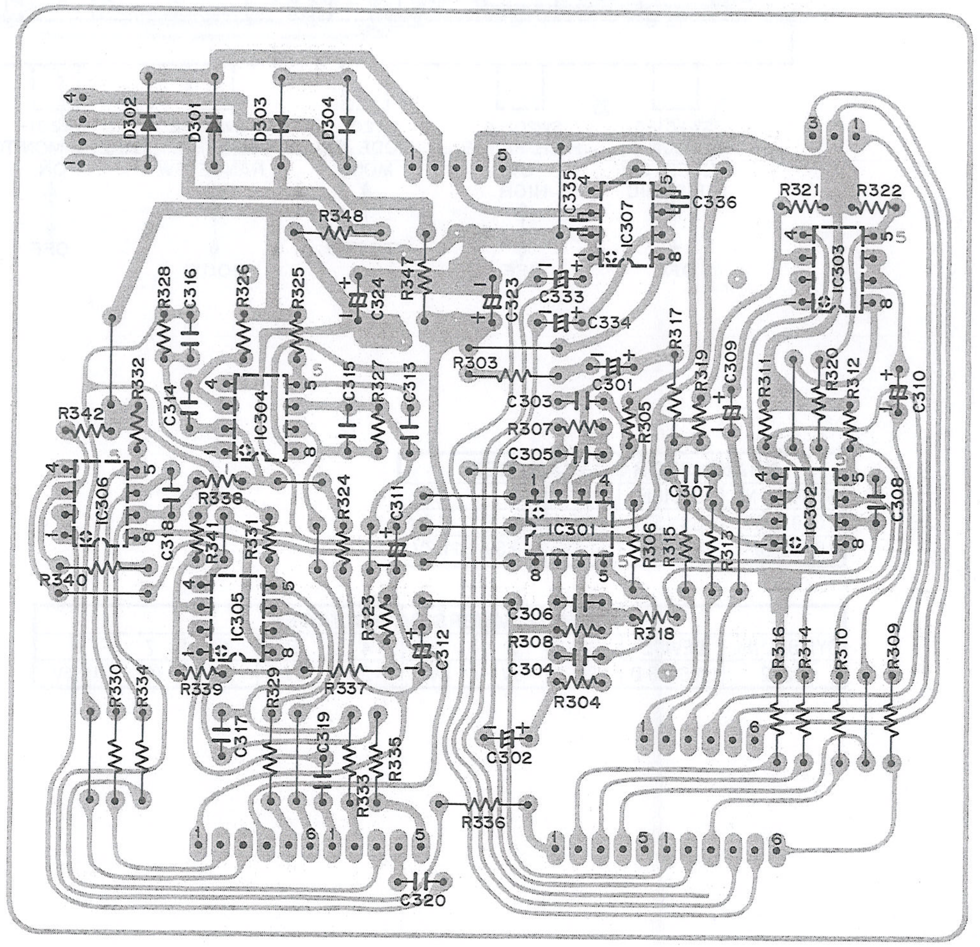
(BOTTOM VIEW)


Q401
IC403
E
B
BK
C410
R407
C411
R408
C405
LC401
R409
C407
R410
C406
R411
C408
D403
D424
(POWER STANDBY)
C409
R413
R412
K402
MUTING SW.
D415
(MUTING)
K406
SYNCHRO REC SW
K401
POWER STANDBY SW.
D417
(SYNCHRO
REC)
SYN
PWR
VOLUME
D413
D412
D411
D410
D409
D408
D407
D406
D405
D404
UP
DN
LC
K403
VOLUME UP
SW.
K404
VOLUME DOWN
SW.
K405
LOUDNESS SW.
D416
(LOUDNESS)
DIGITRON (POWER LEVEL METERS)
D414
(TAPE-1)
D418
(PHONO)
D419
(TUNER)
D420
(CD)
D421
(TV)
D422
(VCR)
D423
(AUX)
R402
D402
D401
C402
R406
R405
C401
R401
IC402
R404
C404
C403
R403
IC401

IC PIN NUMBERS DC VOLTAGES																	
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC401,402	BA 6146	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	15.6V	0V
IC403	μPC 1473	4.6V	1.2V	4.8V	3.5V	0V	0.8V	1.3V	4.8V								

PARAMETRIC AMP. P.C.BOARD

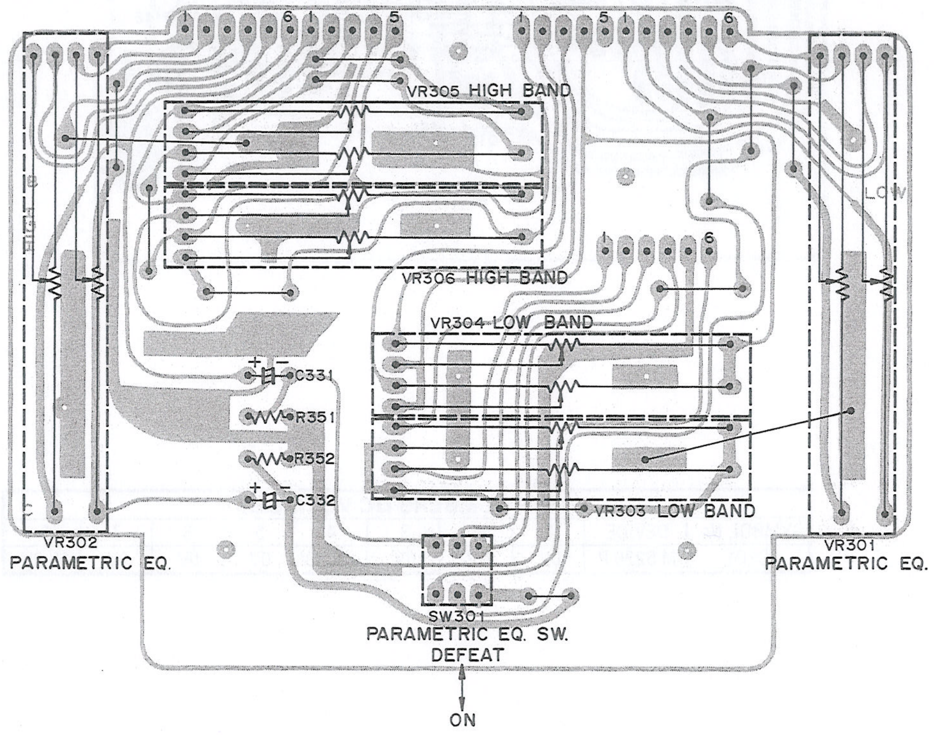
(BOTTOM VIEW)


D302
D301
D303
D304
R348
C335
IC307
C336
R321
R322
IC303
R328
C316
R326
R325
C324
R347
C323
C333
C334
R303
R317
R332
C314
IC304
C315
R327
C313
C301
R319
C309
R311
R320
R312
C310
R342
C303
R307
R305
C305
IC306
R338
R324
C311
C307
IC302
C308
C318
R341
R331
IC301
R306
R315
R313
R340
IC305
R323
C312
C306
R318
R308
C304
R304
R330
R334
R339
R329
R337
R316
R314
R310
R309
C317
C319
R333
R335
C302
R336
C320

IC PIN NUMBERS DC VOLTAGES									
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8
IC301〜307	LA 6458 D	0V	0V	0V	−9.7V	0V	0V	0V	9.6V

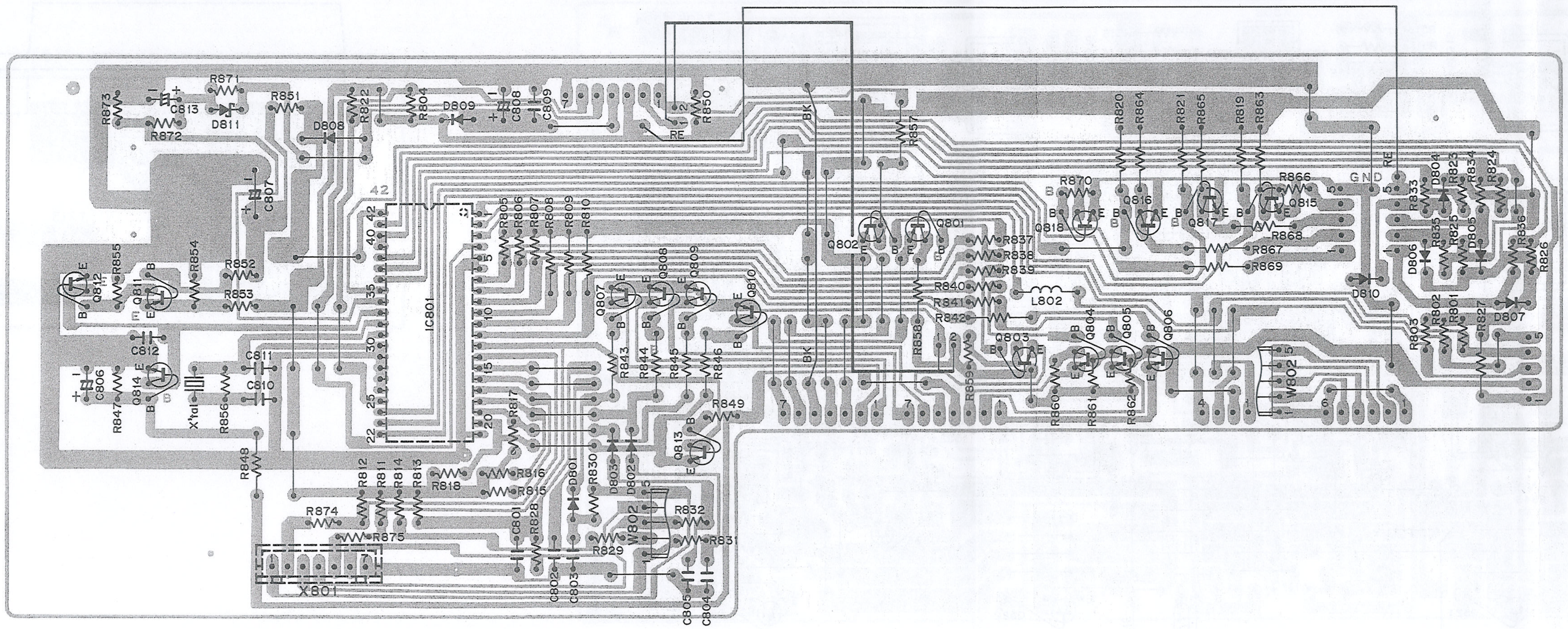
PARAMETRIC VOLUME P.C.BOARD

(BOTTOM VIEW)


VR305 HIGH BAND
VR306 HIGH BAND
VR304 LOW BAND
VR303 LOW BAND
C331
R351
R352
C332
VR302
PARAMETRIC EQ.
VR301
PARAMETRIC EQ.
SW301
PARAMETRIC EQ. SW.
DEFEAT
ON
LOW

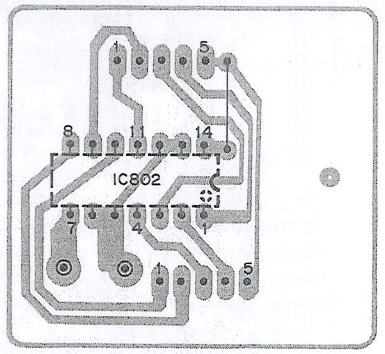
MICON CONTROL PRINTED CIRCUIT BOARD

(BOTTOM VIEW)


IC801
X801
W802
L802
GND
RE
BK
R871
R851
R873
R872
C813
D811
D808
R822
R804
D809
C808
C809
R850
R857
R820
R864
R821
R865
R819
R863
R870
Q816
Q818
Q817
R866
Q815
R868
R867
R869
Q802
Q801
R837
R838
R839
R840
R841
R842
Q803
Q804
Q805
Q806
R858
R859
R860
R861
R862
C807
R855
Q812
Q811
R854
R852
R853
C812
C811
C810
C806
Q814
R847
X'tal
R856
R805
R806
R807
R808
R809
R810
Q807
Q808
Q809
Q810
R843
R844
R845
R846
R849
R817
Q813
R848
R812
R811
R814
R813
R818
R816
R815
D801
R830
D803
D802
R874
R875
C801
R828
R829
R832
R831
C802
C803
C805
C804
R833
D804
R823
R834
R824
R835
R825
D805
R836
R826
D806
D810
R803
R802
R801
R827
D807

SUB CONTROL SW. P.C.BOARD

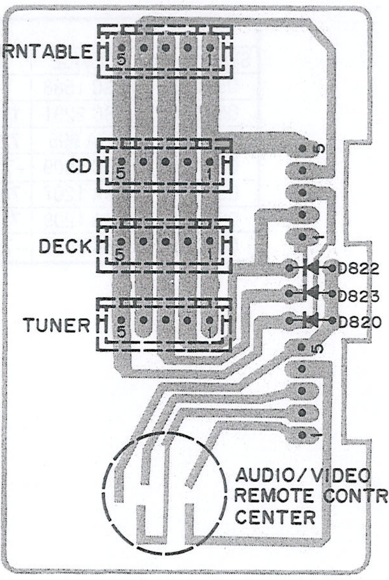
(BOTTOM VIEW)


IC802
8
11
14
7
4
1
5
6

IC PIN NUMBERS DC VOLTAGES																					
SYMBOL NO.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC801	TMP47C400	0V	0V	0V	4.6V	0V	0V	3.5V	4.6V	4.6V	4.6V	4.7V	4.7V	4.7V	4.7V	4.7V	4.7V	3.5V	3.5V	3.5V	3.5V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	0.7V	0.7V	0.7V	0.8V	0V	0V	0V	0V	0V	2.4V	2.6V	4.9V	4.5V	0V	4.9V	4.8V	4.9V	4.9V	4.9V
		41	42																		
		4.9V	5.0V																		

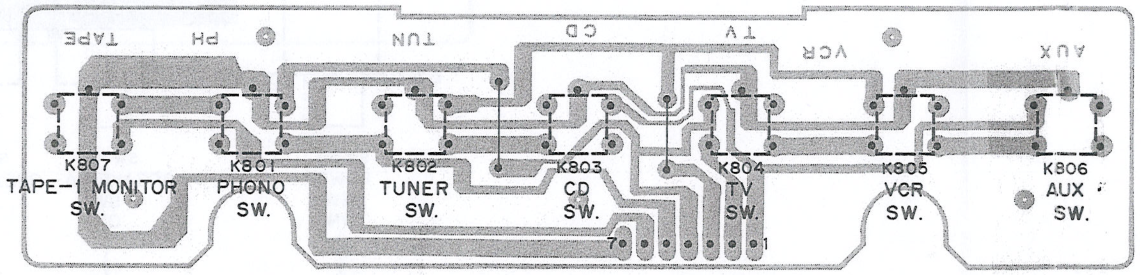
REMOTE CONTROL P.C.BOARD

(BOTTOM VIEW)


TURNTABLE
CD
DECK
TUNER
D822
D823
D820
5
AUDIO/VIDEO REMOTE CONTROL CENTER

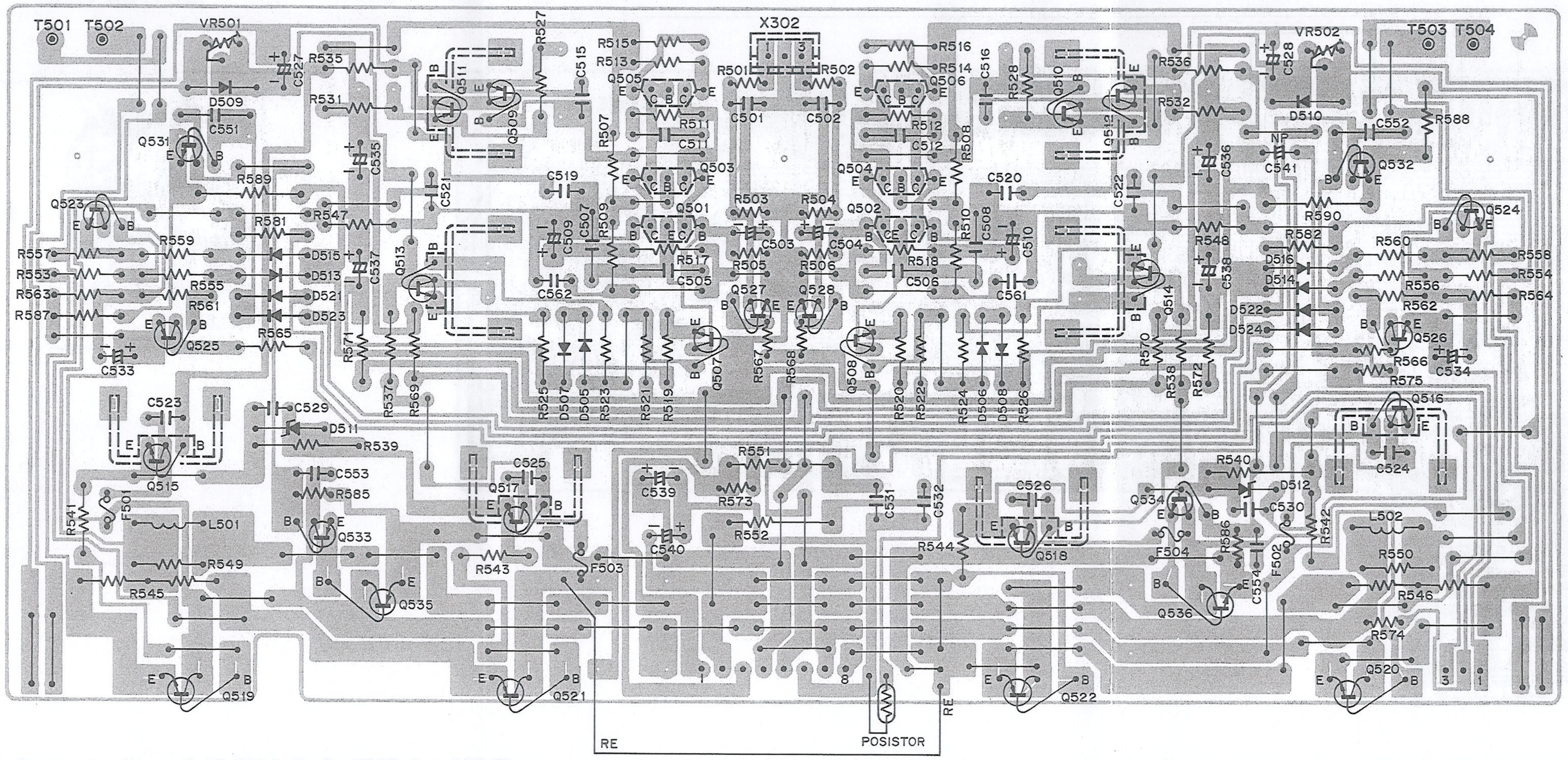
FUNCTION SWITCH P.C.BOARD

(BOTTOM VIEW)


TAPE
PH
TUN
CD
TV
VCR
AUX
K807
TAPE-1 MONITOR SW.
K801
PHONO SW.
K802
TUNER SW.
K803
CD SW.
K804
TV SW.
K805
VCR SW.
K806
AUX SW.
7
1

MAIN AMPLIFIER P.C.BOARD

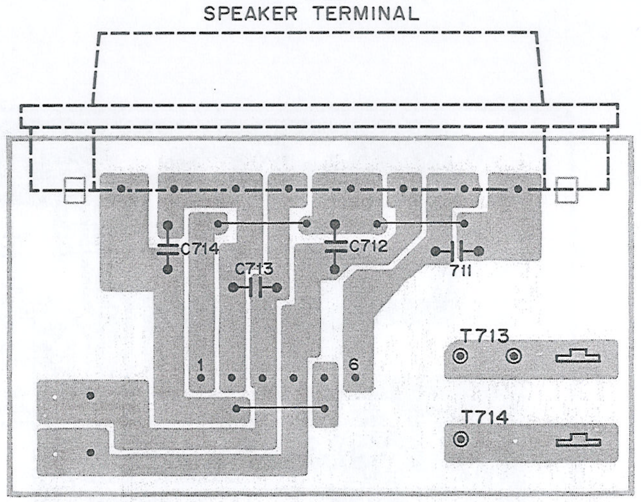
(BOTTOM VIEW)



T501
T502
VR501
X302
T503
T504
VR502
D509
D510
D511
D512
Q501
Q502
Q503
Q504
Q505
Q506
Q507
Q508
Q509
Q510
Q511
Q512
Q513
Q514
Q515
Q516
Q517
Q518
Q519
Q520
Q521
Q522
Q523
Q524
Q525
Q526
Q527
Q528
Q531
Q532
Q533
Q534
Q535
Q536
L501
L502
F501
F502
F503
F504
R501
R502
R503
R504
R505
R506
R535
R536
R531
R532
R541
R542
R543
R544
R545
R546
R549
R550
R551
R552
R573
R574
C501
C502
C523
C524
C525
C526
C529
C530
C539
C540
C541
C551
C552
C553
C554
NP
8
RE
POSISTOR

SPEAKER TERMINAL P.C.BOARD

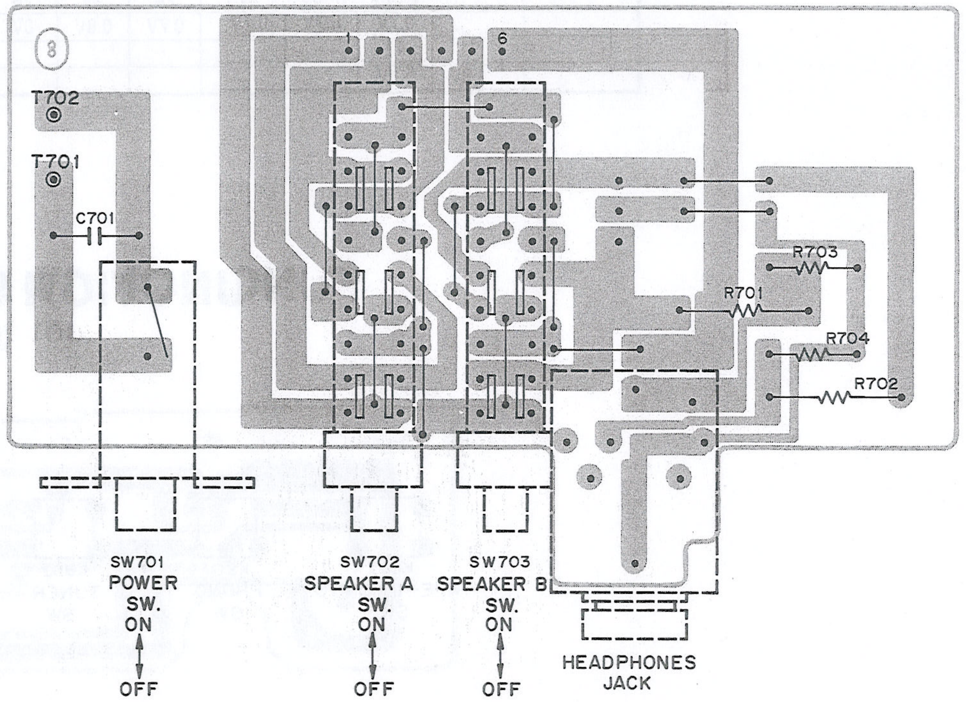
(BOTTOM VIEW)



SPEAKER TERMINAL
C714
C713
C712
711
T713
T714
1
6

SPEAKER SWITCH P.C.BOARD

(BOTTOM VIEW)



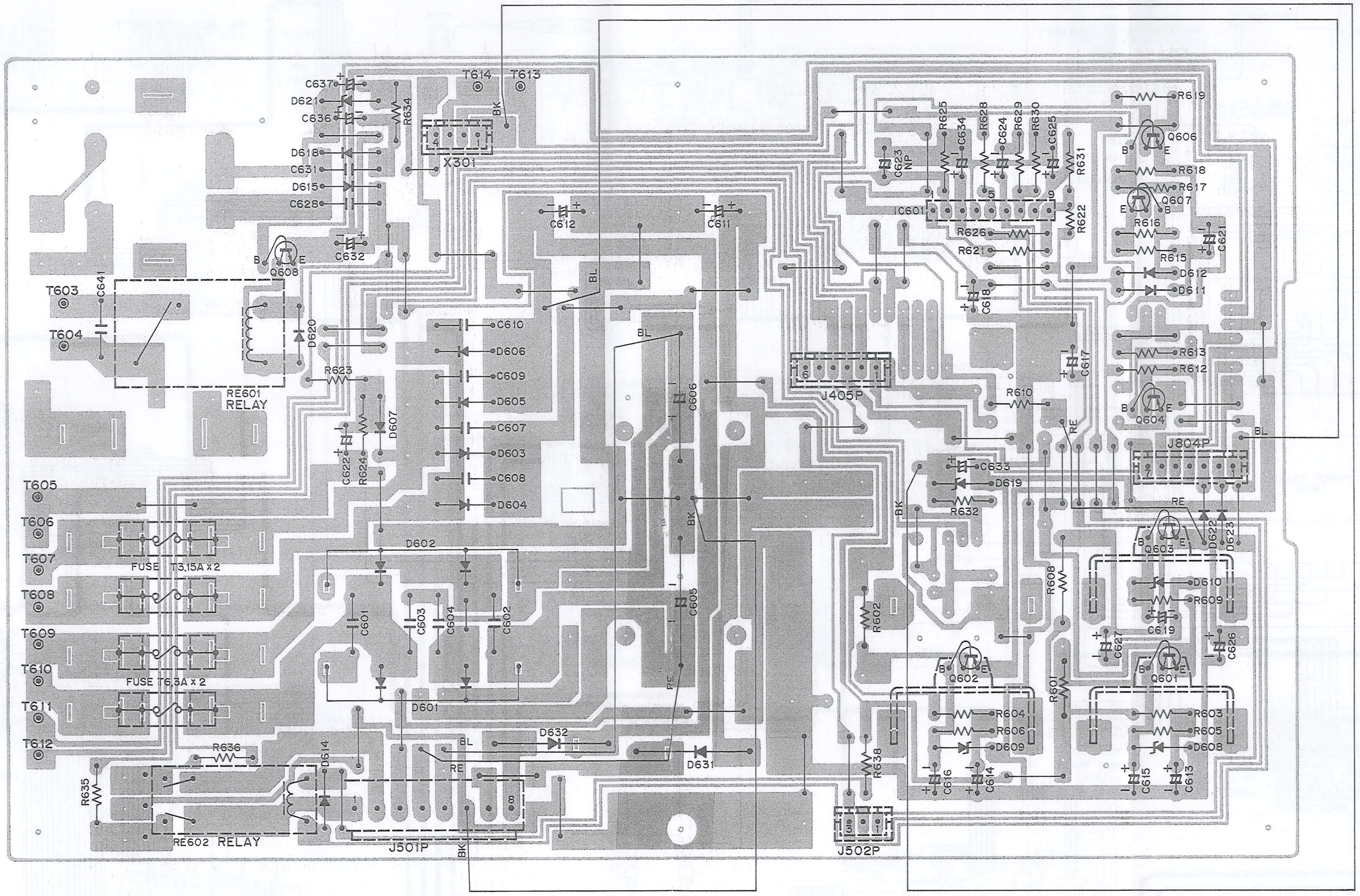
8
1
6
T702
T701
C701
R703
R701
R704
R702
SW701
POWER
SW.
ON
OFF
SW702
SPEAKER A
SW.
ON
OFF
SW703
SPEAKER B
SW.
ON
OFF
HEADPHONES
JACK

TRANSISTOR DC VOLTAGES

SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E
Q501,502	2SC 1583	–	10.5V	−0.7V	Q515,516	2SC 3117	1.1V	73.8V	0.6V
Q503,504	2SC 2291	11.0V	71.2V	10.5V	Q517,518	2SA 1249	−1.2V	−73.9V	−0.7V
Q505,506	2SA 995	72.3V	71.2V	72.6V	Q519,520	2SC 2922	0.5V	73.8V	0V
Q507,508	2SC 2909	−71.5V	−0.7V	−71.9V	Q521,522	2SA 1216	−0.7V	−73.9V	0V
Q509,510	2SA 1207	70.9V	1.1V	71.1V	Q523,524	2SC 2909	0V	73.5V	0V
Q511,512	2SA 1209	71.1V	1.1V	73.8V	Q525,526	2SA 1207	73.3V	−15.5V	73.8V
Q513,514	2SC 2911	−71.5V	−1.2V	72.1V					

POWER SUPPLY P.C.BOARD

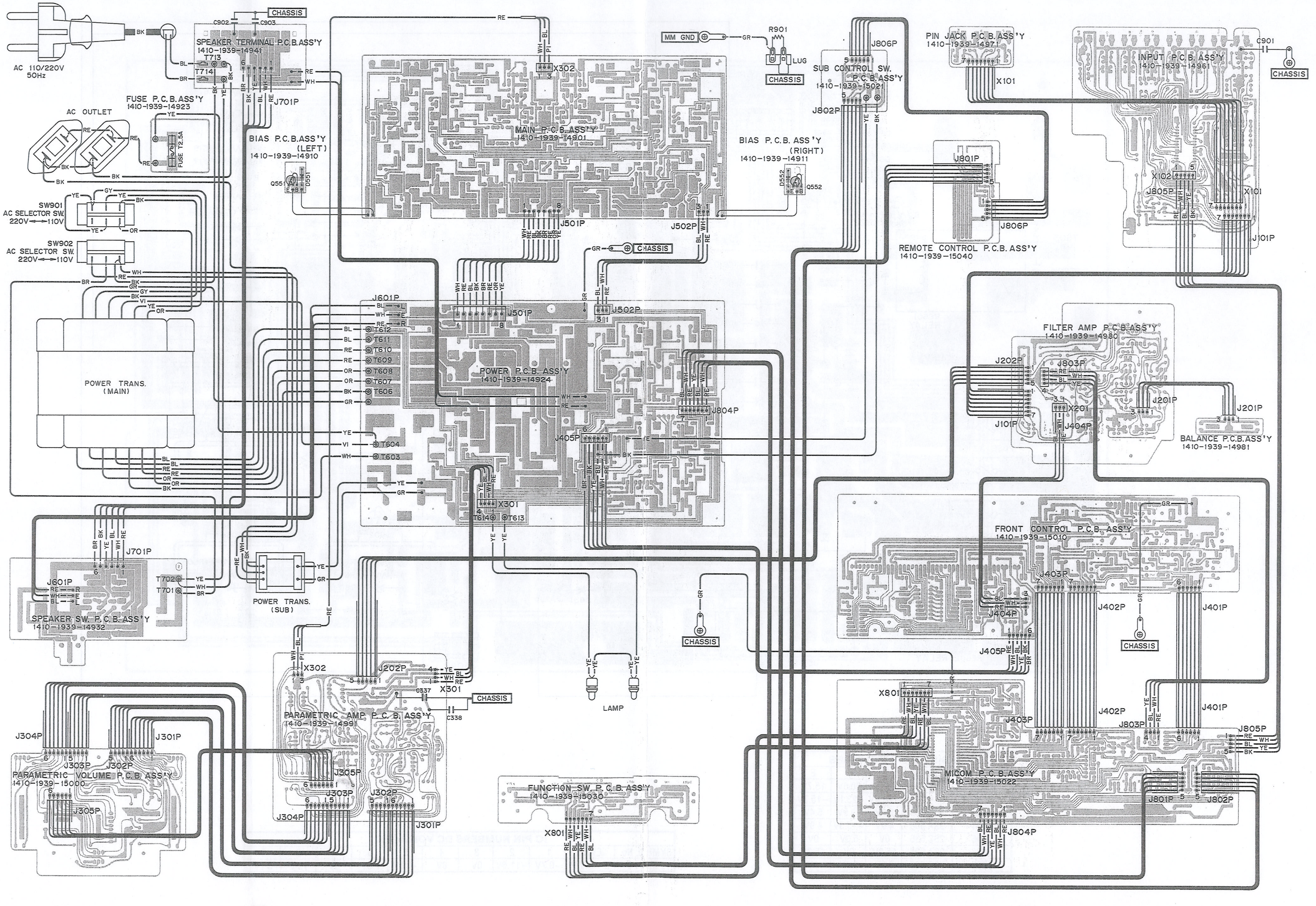
(BOTTOM VIEW)


T614
T613
C637
D621
C636
R634
BK
X301
D618
C631
D615
C628
C632
Q608
B
E
T603
C641
T604
D620
RE601
RELAY
R623
C612
C611
BL
C610
D606
C609
D605
C607
D603
C608
D604
D607
C622
R624
T605
T606
T607
T608
T609
T610
T611
T612
FUSE T3.15A x 2
FUSE T6.3A x 2
D602
C601
C603
C604
C602
D601
C606
C605
D632
D631
RE
R636
R635
D614
RE602 RELAY
J501P
C623 NP
R625
C634
R628
C624
R629
R630
C625
R631
IC601
R622
R626
R621
C618
J405P
C617
R610
R619
Q606
R618
R617
Q607
R616
C621
R615
D612
D611
R613
R612
Q604
J804P
C633
D619
R632
Q603
D622
D623
R608
D610
R609
C619
C627
C626
R602
Q602
Q601
R601
R604
R606
D609
R603
R605
D608
R638
C616
C614
C615
C613
J502P

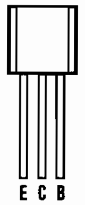
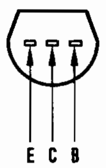
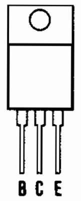
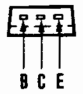
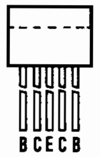
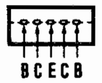
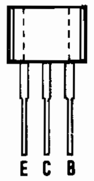
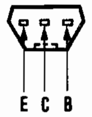
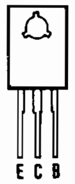
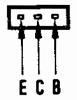
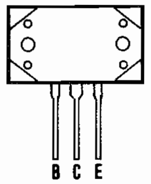
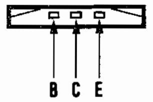
TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q601	2SD 330	16.3V	20.5V	15.7V
Q602	2SB 514	−16.3V	−23.1V	−15.7V
Q603	2SD 330	6.0V	19.9V	5.4V
Q604	2SA 608	4.9V	−15.5V	4.9V
Q606	2SC 536	0V	5.3V	0V
Q607	2SA 608	15.2V	0V	15.3V
Q608	2SC 536	0.8V	0.3V	0V

IC PIN NUMBERS DC VOLTAGES										
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9
IC601	TA 7317 P	−0.7V	−11.6V	0V	0V	−0.8V	1.0V	0V	1.3V	3.1V

POINT TO POINT WIRING DIAGRAM


AC 110/220V 50Hz
CHASSIS
C902
C903
SPEAKER TERMINAL P.C.B.ASS'Y 1410-1939-14941
T713
T714
J701P
FUSE P.C.B.ASS'Y 1410-1939-14923
AC OUTLET
FUSE T2.5A
BIAS P.C.B.ASS'Y (LEFT) 1410-1939-14910
Q551
D551
SW901 AC SELECTOR SW. 220V⟷110V
SW902 AC SELECTOR SW. 220V⟷110V
POWER TRANS. (MAIN)
X302
MAIN P.C.B.ASS'Y 1410-1939-14901
J501P
J502P
MM GND
R901
LUG
BIAS P.C.B. ASS'Y (RIGHT) 1410-1939-14911
D552
Q552
J806P
SUB CONTROL SW. P.C.B.ASS'Y 1410-1939-15021
J802P
PIN JACK P.C.B.ASS'Y 1410-1939-14971
X101
INPUT P.C.B.ASS'Y 1410-1939-14961
C901
X102
J805P
J101P
J801P
REMOTE CONTROL P.C.B.ASS'Y 1410-1939-15040
J601P
T612
T611
T610
T609
T608
T607
T606
T604
T603
POWER P.C.B.ASS'Y 1410-1939-14924
J804P
J405P
X301
T614
T613
FILTER AMP P.C.B.ASS'Y 1410-1939-14980
J202P
J803P
X201
J201P
J404P
BALANCE P.C.B.ASS'Y 1410-1939-14981
J701P
J601P
T702
T701
SPEAKER SW. P.C.B.ASS'Y 1410-1939-14932
POWER TRANS. (SUB)
LAMP
FRONT CONTROL P.C.B.ASS'Y 1410-1939-15010
J403P
J402P
J401P
J404P
J405P
X801
MICOM P.C.B.ASS'Y 1410-1939-15022
J803P
J805P
J801P
J802P
J804P
X302
J202P
X301
C337
C338
PARAMETRIC AMP P.C.B.ASS'Y 1410-1939-14991
J305P
J303P
J302P
J304P
J301P
PARAMETRIC VOLUME P.C.B.ASS'Y 1410-1939-15000
FUNCTION SW. P.C.B.ASS'Y 1410-1939-15030
X801
RE
WH
BK
BL
BR
YE
GR
GY
OR
VI
PI

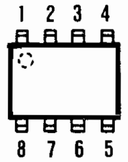
SEMICONDUCTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW	TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA 608 2SA 1207 2SC 536 2SC 1571 2SC 2878 2SC 2909			2SB 514 2SD 330		
2SA 995 2SC 1583 2SC 2291			2SB 808		
2SA 1209 2SA 1249 2SA 2911 2SC 3117 2SD 947			2SA 1216 2SC 2922		

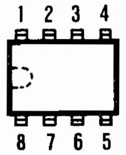
TERMINAL NAME

B → BASE
C → COLLECTOR
E → EMITTER

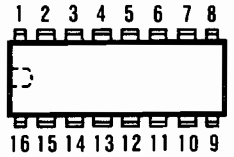
LA 6458 DS BOTTOM VIEW



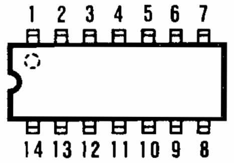
M5220 P BOTTOM VIEW



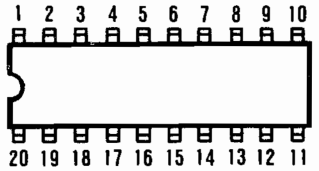
BA 6146 BOTTOM VIEW


1 2 3 4 5 6 7 8
16 15 14 13 12 11 10 9

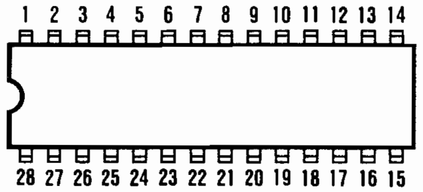
LC 4066 BH BOTTOM VIEW


1 2 3 4 5 6 7
14 13 12 11 10 9 8

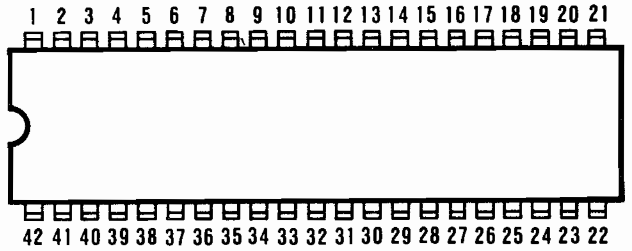
TC 9177 P BOTTOM VIEW


1 2 3 4 5 6 7 8 9 10
20 19 18 17 16 15 14 13 12 11

TC 9163 N BOTTOM VIEW

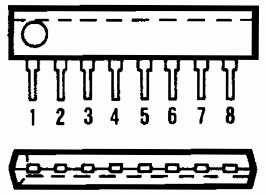

1 2 3 4 5 6 7 8 9 10 11 12 13 14
28 27 26 25 24 23 22 21 20 19 18 17 16 15

TMP 47C400N BOTTOM VIEW

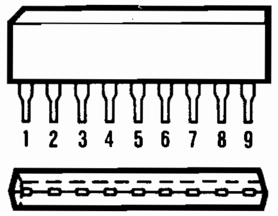

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22

SEMICONDUCTOR LEAD IDENTIFICATION (Continued)

μPC 1473 HA FRONT/BOTTOM VIEWS

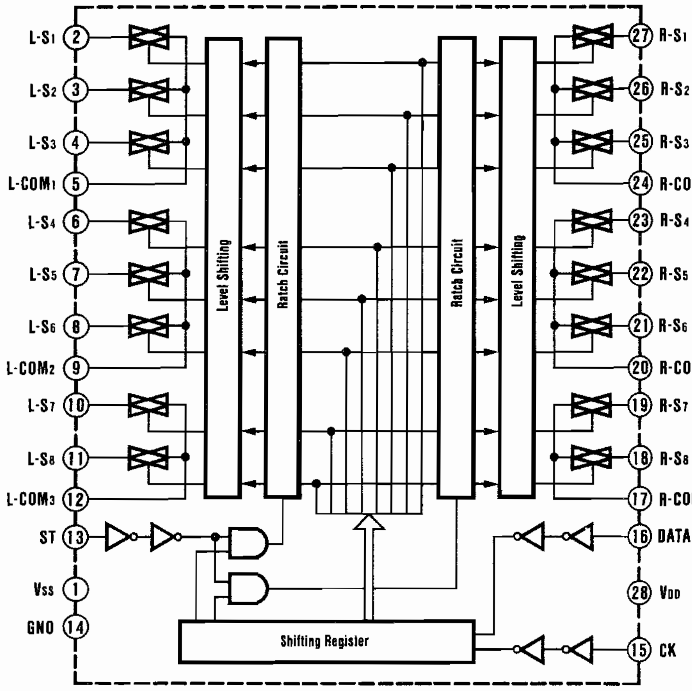


TA 7317 P FRONT/BOTTOM VIEWS

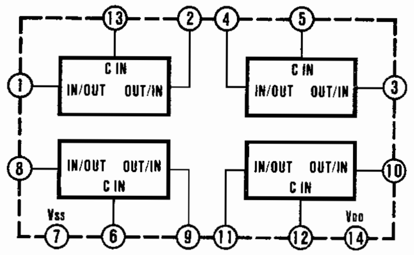


INTEGRATED CIRCUIT BLOCK DIAGRAM

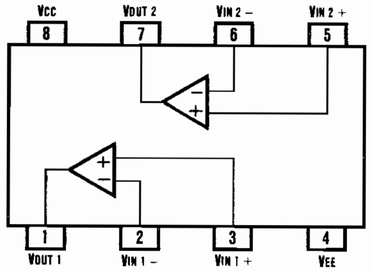
FUNCTION ANALOG SWITCH IC LC 9163 N


L-S1 2
L-S2 3
L-S3 4
L-COM1 5
L-S4 6
L-S5 7
L-S6 8
L-COM2 9
L-S7 10
L-S8 11
L-COM3 12
ST 13
Vss 1
GND 14
Level Shifting
Ratch Circuit
Ratch Circuit
Level Shifting
Shifting Register
27 R-S1
26 R-S2
25 R-S3
24 R-COM1
23 R-S4
22 R-S5
21 R-S6
20 R-COM2
19 R-S7
18 R-S8
17 R-COM3
16 DATA
28 VDD
15 CK

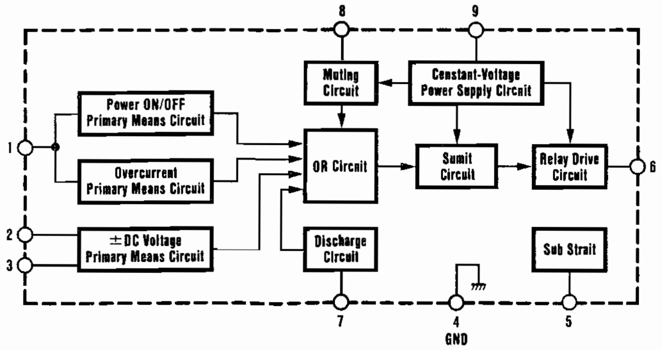
SUB CONTROL IC LC 4066 BH


13
2
4
5
1
C IN
IN/OUT OUT/IN
C IN
IN/OUT OUT/IN
3
8
IN/OUT OUT/IN
C IN
IN/OUT OUT/IN
C IN
10
Vss
7
6
9
11
12
VDD
14

PRE AMP IC LA6458 D

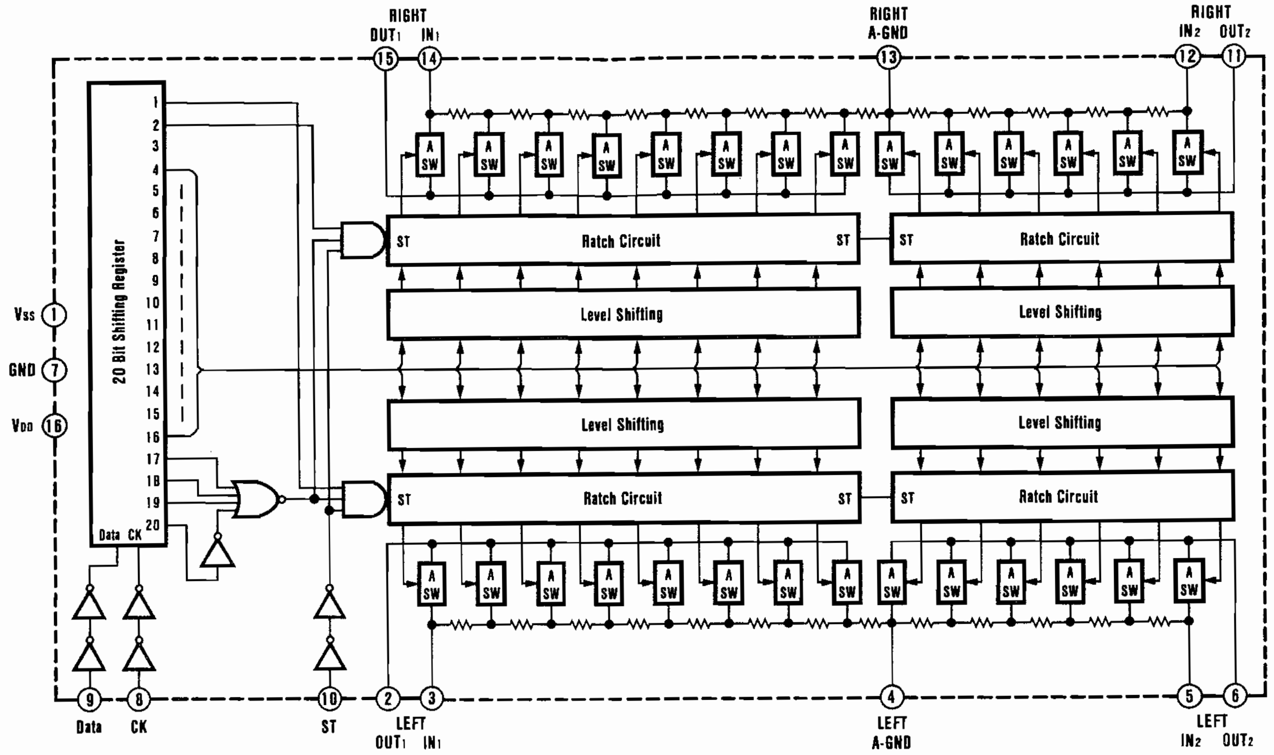

Vcc 8
VOUT 2 7
VIN 2 – 6
VIN 2 + 5
1 VOUT 1
2 VIN 1 –
3 VIN 1 +
4 VEE

RELAY DRIVING IC TA 7317P

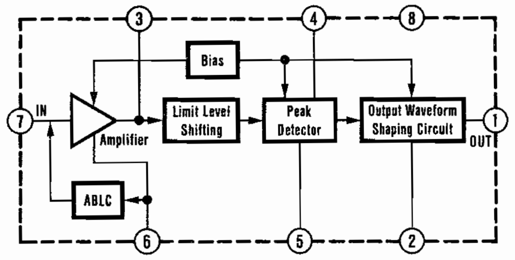

8
9
Muting Circuit
Constant-Voltage Power Supply Circuit
Power ON/OFF Primary Means Circuit
1
Overcurrent Primary Means Circuit
OR Circuit
Sumit Circuit
Relay Drive Circuit
6
2
3
±DC Voltage Primary Means Circuit
Discharge Circuit
Sub Strait
7
4 GND
5

INTEGRATED CIRCUIT BLOCK DIAGRAM(Continued)

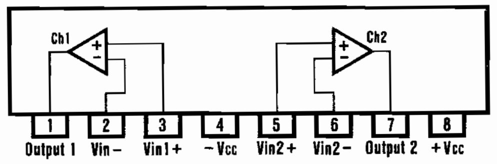
ELECTRONIC VOLUME (with Loudness) IC TC 9177P


RIGHT OUT1 IN1
RIGHT A-GND
RIGHT IN2 OUT2
20 Bit Shifting Register
Data CK
Vss
GND
VDD
Ratch Circuit
Level Shifting
ST
A SW
Data
CK
ST
LEFT OUT1 IN1
LEFT A-GND
LEFT IN2 OUT2

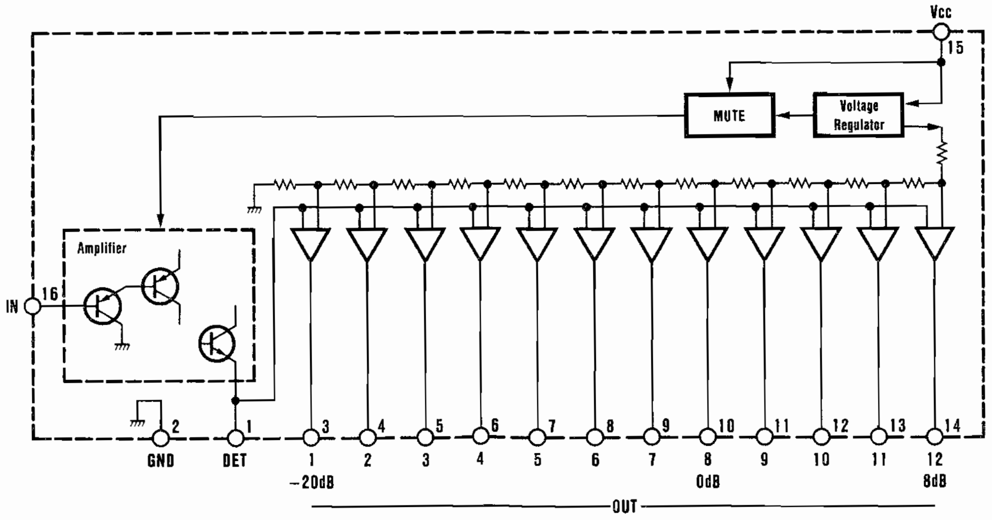
REMOTE CONTROL IC μPC 1473 HA


Bias
IN
Amplifier
Limit Level Shifting
Peak Detector
Output Waveform Shaping Circuit
OUT
ABLC

PHONO EQ. AMP IC M 5220 P


Ch1
Ch2
Output 1
Vin−
Vin1+
−Vcc
Vin2+
Vin2−
Output 2
+Vcc

POWER LEVEL METER IC BA 6146


Vcc
MUTE
Voltage Regulator
Amplifier
IN
GND
DET
−20dB
0dB
8dB
OUT

Bezeichnung/Description

SERVICE MANUAL

Teile-Nr./Parts No.

WM17154

Menge/Quantity

1

Lagerort

HL0-01-3

LS-Nr.

722896 / 8

SANYO FISHER Vertriebs GmbH

FISHER

FISHER Hi-Fi Europa Vertriebs GmbH

Stahlgruberring 4 8000 München 82	Tel: 089/420 45-0 Tlx: 524033
Technisches Labor/ Qualitätskontrolle	Durchwahl −120/121
Funkstörmeßlabor	−127/128
Service-Zentrale	
Color TV	−166
Hi-Fi/Audio	−168
Video	−172
Autoradio	−170
Ersatzteillager	−155/156
Techn. Schulung	−174

Weitere Service-Zentralen in BRD (keine Ersatzteilbestellungen)

Offenbach/ Frankfurt	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Hamburg	Spaldingstraße 1 2000 Hamburg	Tel: 040/23 12 23/24 Tlx: 2 173 839
Military	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Ditzingen	Max-Eyth-Straße 11 7257 Ditzingen	Tel: 07156/50 88 Tlx: 7 245 278
Düsseldorf-Erkrath	Albert-Einstein-Straße 8 4006 Erkrath 1	Tel: 0211/200 05-0 Tlx: 8 588 563	Berlin (Fisher Vertragswerkstatt)	Drewitz & Kaulbach Eisenacher Straße 53 1000 Berlin 62	Tel: 030/781 20 01 Tlx: 186 460

Unser FISHER-Team steht Ihnen jederzeit gerne zur Verfügung. Ersatzteilbestellungen wickeln Sie bitte ausschließlich mit unserer Service-Zentrale München ab.

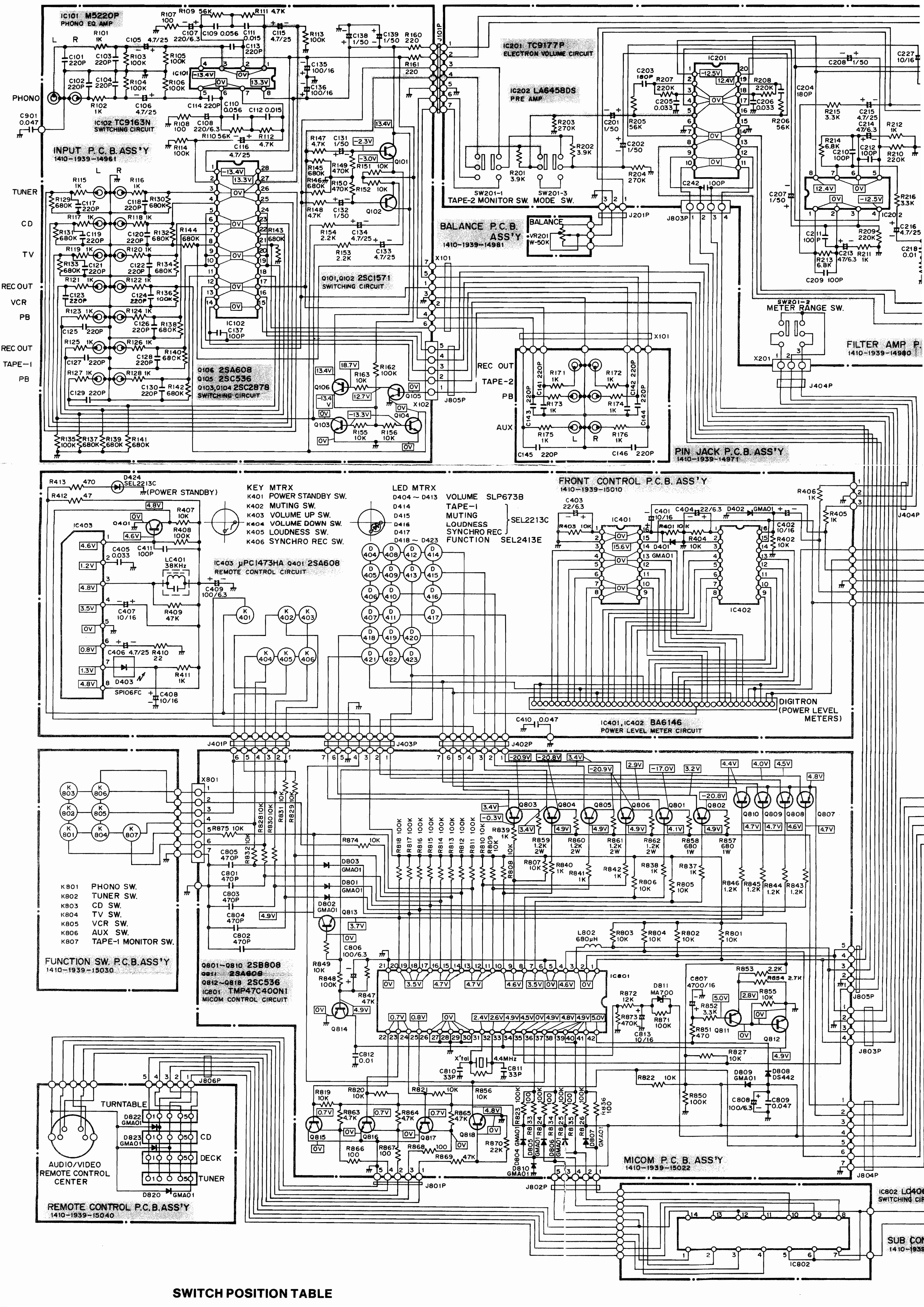
Senden Sie uns im Garantiefall die ausgefüllte Garantiekarte ein. Bei unverkauften Lagergeräten des Fachhandels gilt als Garantienachweis eine eidesstattliche Versicherung mit eingetragener Modellbezeichnung und Geräte-Nummer oder ein Liefernachweis. Die gleiche Regelung besteht auch für Reparaturaufträge.

Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.

Sie sparen so wertvolle Zeit. Vielen Dank.

March/'86/2,000 **Printed in Japan**

CA-890 SCHEMA


IC101 M5220P PHONO EQ. AMP
IC102 TC9163N SWITCHING CIRCUIT
INPUT P.C.B. ASS'Y 1410-1939-14961
PHONO
TUNER
CD
TV
REC OUT
VCR
PB
REC OUT
TAPE-1
PB
IC201 TC9177P ELECTRON VOLUME CIRCUIT
IC202 LA6458DS PRE AMP
SW201-1 TAPE-2 MONITOR SW.
SW201-3 MODE SW.
BALANCE P.C.B. ASS'Y 1410-1939-14981
BALANCE VR201 W-50K
Q101,Q102 2SC1571 SWITCHING CIRCUIT
Q106 2SA608
Q105 2SC536
Q103,Q104 2SC2878 SWITCHING CIRCUIT
REC OUT
TAPE-2
PB
AUX
PIN JACK P.C.B. ASS'Y 1410-1939-14971
SW201-2 METER RANGE SW.
FILTER AMP P.
1410-1939-14980
KEY MTRX
K401 POWER STANDBY SW.
K402 MUTING SW.
K403 VOLUME UP SW.
K404 VOLUME DOWN SW.
K405 LOUDNESS SW.
K406 SYNCHRO REC SW.
LED MTRX
D404～D413 VOLUME SLP673B
D414 TAPE-1
D415 MUTING
D416 LOUDNESS
D417 SYNCHRO REC
SEL2213C
D418～D423 FUNCTION SEL2413E
D424 SEL2213C (POWER STANDBY)
IC403 μPC1473HA Q401 2SA608 REMOTE CONTROL CIRCUIT
LC401 38KHz
FRONT CONTROL P.C.B. ASS'Y 1410-1939-15010
IC401, IC402 BA6146 POWER LEVEL METER CIRCUIT
DIGITRON (POWER LEVEL METERS)
K801 PHONO SW.
K802 TUNER SW.
K803 CD SW.
K804 TV SW.
K805 VCR SW.
K806 AUX SW.
K807 TAPE-1 MONITOR SW.
FUNCTION SW. P.C.B. ASS'Y 1410-1939-15030
Q801～Q810 2SB808
Q811 2SA608
Q812～Q818 2SC536
IC801 TMP47C400N1 MICOM CONTROL CIRCUIT
X'tal 4.4MHz
MICOM P.C.B. ASS'Y 1410-1939-15022
TURNTABLE
CD
DECK
TUNER
AUDIO/VIDEO REMOTE CONTROL CENTER
REMOTE CONTROL P.C.B. ASS'Y 1410-1939-15040
IC802 LC406
SWITCHING C
SUB CON
1410-1939
IC802

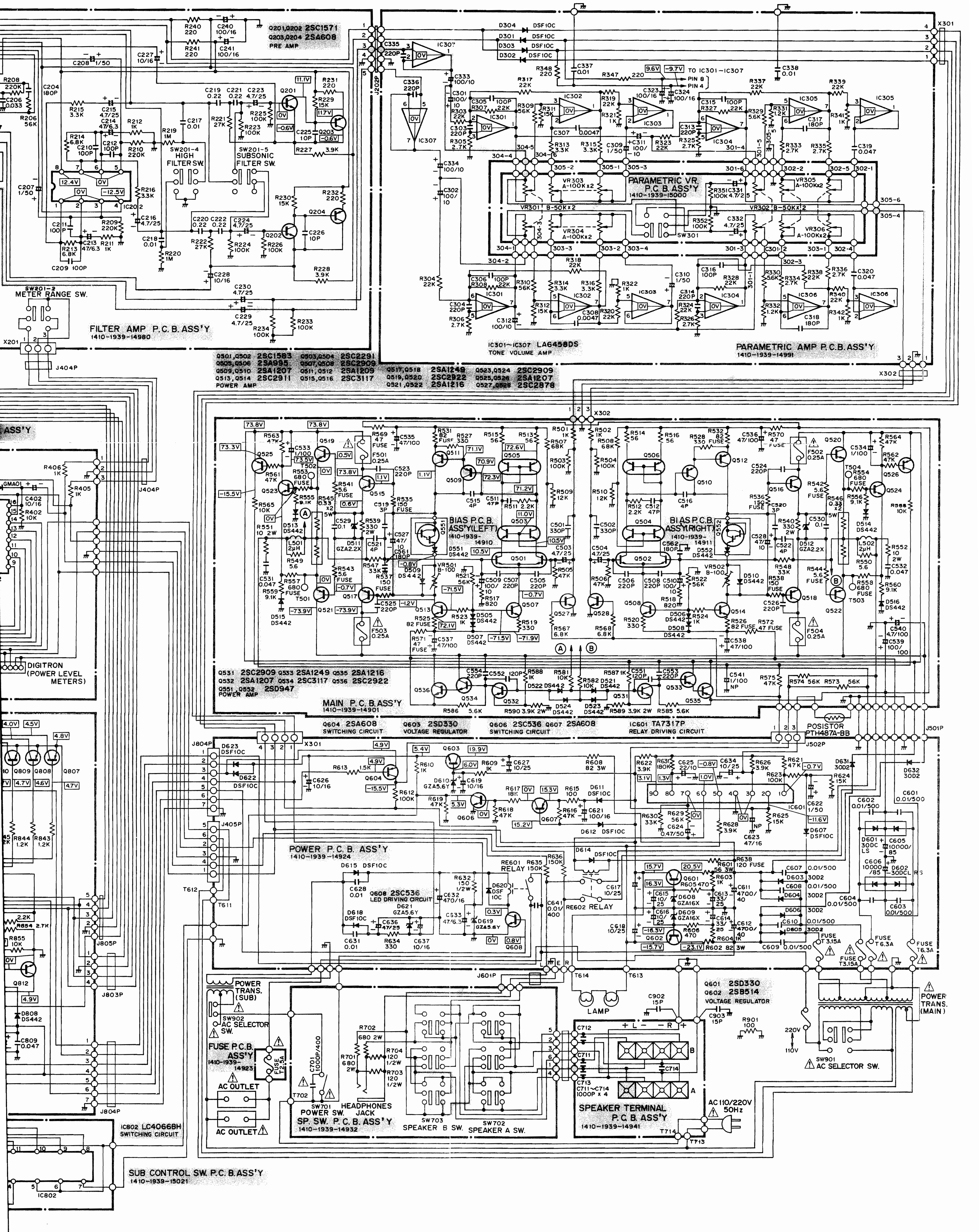
SWITCH POSITION TABLE

No.	Name	Position	No.	Name	Position	No.	Name	Position
SW201-1	TAPE-2 MONITOR Switch	OFF	K403	VOLUME UP Switch	OFF	K802	TUNER Switch	OFF
SW201-2	METER RANGE Switch	200W	K404	VOLUME DOWN Switch	OFF	K803	CD Switch	OFF
SW201-3	MODE Switch	STEREO	K405	LOUDNESS Switch	OFF	K804	TV Switch	OFF
SW201-4	HIGH FILTER Switch	OFF	K406	SYNCHRO REC Switch	OFF	K805	VCR Switch	OFF
SW201-5	SUBSONIC FILTER Switch	OFF	SW701	POWER Switch	OFF	K806	AUX Switch	OFF
SW301	PARAMETRIC EQ. Switch	ON	SW702	SPEAKER A Switch	OFF	K807	TAPE-1 MONITOR Switch	OFF
K401	POWER STANDBY Switch	OFF	SW703	SPEAKER B Switch	OFF	SW901	AC SELECTOR Switch	22[illegible]V
K402	MUTING Switch	OFF	K801	PHONO Switch	OFF			

PRODUCT SAFET

Each precaution in this manual should be followed during servic
parts list and the schematic diagram designate components in w
ing a component identified with ⚠, use only the replacement p
tance, wattage or voltage that are designated in the parts list in t
Leakage-current or resistance measurements must be made to
from the supply circuit before returning the product to the custo

SCHEMATIC DIAGRAM


Q201,Q202 2SC1571
Q203,Q204 2SA608
PRE AMP
SW201-4 HIGH FILTER SW.
SW201-5 SUBSONIC FILTER SW.
SW201-2 METER RANGE SW.
FILTER AMP P.C.B. ASS'Y
1410-1939-14980
PARAMETRIC VR. P.C.B ASS'Y
1410-1939-15000
IC301~IC307 LA6458DS
TONE VOLUME AMP
PARAMETRIC AMP P.C.B. ASS'Y
1410-1939-14991
Q501,Q502 2SC1583
Q503,Q504 2SC2291
Q505,Q506 2SA995
Q507,Q508 2SC2909
Q509,Q510 2SA1207
Q511,Q512 2SA1209
Q513,Q514 2SC2911
Q515,Q516 2SC3117
Q517,Q518 2SA1249
Q519,Q520 2SC2922
Q521,Q522 2SA1216
Q523,Q524 2SC2909
Q525,Q526 2SA1207
Q527,Q528 2SC2878
POWER AMP
BIAS P.C.B. ASS'Y(LEFT)
1410-1939-14910
BIAS P.C.B. ASS'Y(RIGHT)
1410-1939-14911
Q531 2SC2909 Q533 2SA1249 Q535 2SA1216
Q532 2SA1207 Q534 2SC3117 Q536 2SC2922
Q551,Q552 2SD947
POWER AMP
MAIN P.C.B. ASS'Y
1410-1939-14901
DIGITRON (POWER LEVEL METERS)
Q604 2SA608 SWITCHING CIRCUIT
Q603 2SD330 VOLTAGE REGULATOR
Q606 2SC536 Q607 2SA608 SWITCHING CIRCUIT
IC601 TA7317P RELAY DRIVING CIRCUIT
POSISTOR PTH487A-BB
POWER P.C.B. ASS'Y
1410-1939-14924
Q608 2SC536 LED DRIVING CIRCUIT
RE601 RELAY
RE602 RELAY
Q601 2SD330
Q602 2SB514
VOLTAGE REGULATOR
POWER TRANS. (SUB)
POWER TRANS. (MAIN)
SW902 AC SELECTOR SW.
SW901 AC SELECTOR SW.
FUSE P.C.B. ASS'Y
1410-1939-14923
AC OUTLET
AC OUTLET
LAMP
SW701 POWER SW.
HEADPHONES JACK
SP. SW. P.C.B. ASS'Y
1410-1939-14932
SW703 SPEAKER B SW.
SW702 SPEAKER A SW.
SPEAKER TERMINAL P.C.B. ASS'Y
1410-1939-14941
AC 110/220V 50Hz
IC802 LC4066BH SWITCHING CIRCUIT
SUB CONTROL SW. P.C.B. ASS'Y
1410-1939-15021

PRODUCT SAFETY NOTICE

ual should be followed during servicing. Components identified with the IEC symbol ⚠ in the
diagram designate components in which safety can be of special significance. When replac-
ith ⚠, use only the replacement parts designated, or parts with the same ratings of resis-
t are designated in the parts list in this manual.
ce measurements must be made to determine that exposed parts are acceptably insulated

NOTES:

1. All resistors values are indicated in "ohm" ($K=10^3$, $M=10^6$).
2. All capacitors values are indicated in "μF" ($P=10^{-12}$).
3. All voltages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10 % with respect to chassis ground
   c. No signals at input terminals
   d. AC input at 220 volts 50 Hz
4. This is a basic schematic diagram.